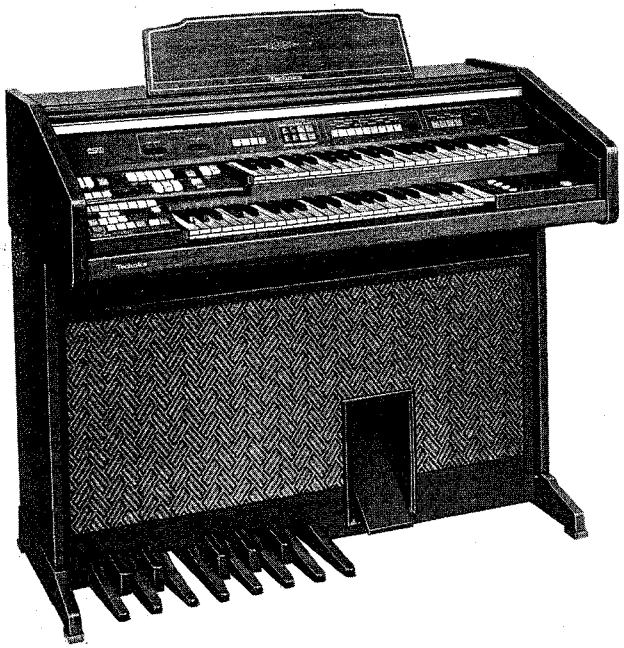
ORDER NO. EOS-83-1047

Service Manual

Electronic Organ

SX-E33

(EN), (ES), (ED), (EI), (EH), (EB), (EF), (EG), (EW), (EL), (EP), (MC), (XT), (EK), (XL), (XR), (XS), (X), (XX), (XV)



AREAS

(EN): Norway
(ES): Sweden
(ED): Denmark
(EI): Italy
(EH): Holland
(EB): Belgium
(EF): France
(EG): Garmany, Austria
(EW): Switzerland
(EL): Finland
(EP): Spain
(EK): the United Kingdom
(MC): Canada
(XT): Taiwan
(XL): New Zealand
(XR): Australia
(XS): Malaysia, Singapore, South Africa
(X): the Middle Near East, Hong Kong, the Philippines, Indonesia
(XV): Venezuela, Ecador, Panama
(XX): Peru, Chile

Specifications

Keyboards
- Upper Manual: 44 Keys f∼c⁴ ($3^2/_3$ Octaves)
- Lower Manual: 44 Keys F∼c³ ($3^2/_3$ Octaves)
- Pedal Keyboard: 13 Keys C∼c (1 Octave)

Fullband Setting Computer (FSC)
Record, 1∼8 (lower keyboard)

Voice Setting Computer (VSC)
Record, I, II, III, Cancel, 20 Combination Presets (lower keyboard: 1∼20)

Orchestral Conductor
- Upper: Tab Voices, String Ensemble, Poly Presets, Solo Synthe Presets
- Lower: Tab Voices, String Ensemble, Poly Presets, Solo Synthe Presets

Upper Tones
- Tab Voices: Flute 16′, 8′, 4′, 2′, String 8′
- Percussive Tone: 4′, Click
- Harmonic Coupler: $2^2/_3{}'$
- String Ensemble: Upper Volume
- Poly Presets (Upper & Lower)
- Percussive Presets: Piano, Harpsichord, Vibraphone, Guitar
- Orchestral Presets: Trombone, Saxophone, Accordion, Clarinet, Wah Brass.....Full
- Solo Synthe Presets (Upper & Lower): Trombone, Saxophone, Panflute, Synthe Chopper.....Volume

Lower Tones
- Tab Voices: Flute 8′, 4′, String 8′.....Full
- Harmonic Coupler: 2′
- String Ensemble: Lower Volume
- Poly Presets (Upper & Lower)
- Percussive Presets: Piano, Harpsichord, Vibraphone, Guitar
- Orchestral Presets: Trombone, Saxophone, Accordion, Clarinet, Wah Brass.....Full
- Solo Synthe Presets (Upper & Lower): Trombone, Saxophone, Panflute, Synthe Chopper.....Volume

Bass Tones: Bass 16′, 8′, Electric Bass.....Volume

Effects:
- Sustain: Upper .....On, Length Control; U & L Poly Presets...On, Length Control; Lower .....On, Length Control; Bass.....Length Control
- Tremolo/Celeste: Celeste, Chorus/Tremolo.....U. Tab Voices; U & L Poly Presets, L. Tab Voices
- Reverb: Reverb Depth Control
- Glide: Foot SW

Techni-Chord: On, Close/Open

Automatic Rhythm
- Drum Percussion: March, Shuffle, Swing, Ballad, 8-beat, 16-beat, Disco I, Disco II, Bossanova, Rumba, Samba, Cha-Cha, Tango, Jazz Waltz, Waltz
- Rhythm Controls: Drum Percussion Volume, Tempo, Synchro, Start/Stop, Glide/Rhythm.....Foot SW
- Fill-In & Intro: Fill-In & Intro
- Rhythmic Orchestra: On, I/II.....Full

Program Chord Computer (PCC)
Record, PCC, Cancel
- Chord Composer: D.S.
- Auto Play Chord: Fingered, Memory, Cancel

Transpose: ♯(transpose), Record, G ∼ C ∼ F♯/G♭

Tuning: Free Set, Pitch Control (−, +)

Others: Power Switch, Main Volume, Expression Pedal, Headphone Jack, Microphone Jack with Volume (input level: 7.5mV, 10kΩ), Line Out (output level: 300mV, 600Ω)

Speakers: 30cm (12″), 6Ω×1 8cm (3.2″), 6Ω×1

Maximum Output: 50W

Power Requirement: 110W AC 120/220/240V 50/60Hz, AC 220V 50/60Hz.....Europe, AC 240V 50/60Hz.....Great Britain, AC 120V 60Hz .....North America, Taiwan

Cabinet Dimensions: 108.8cm(W)×58cm(D)×97.6cm(H)

Net Weight (without bench): 60kg (132.3 lbs)

Technics

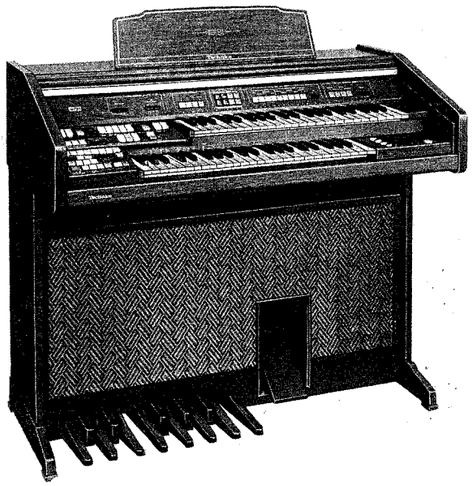
Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

5145

PACKING PARTS LIST

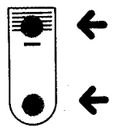
Ref. No.		Part No.	Description	Per/ Set
○		SPNGE33EA	Packing Parts Ass'y	1
○	MC	SPNGE33EB	Packing Parts Ass'y (MC)	1
○	1	SPNG1418A	Carton Box	(1)
○	2	SPNG5323A	Pad, Rear Right Side	(1)
○	3	SPNG5321A	Pad, Front Right Side	(1)
○	4	SPNG5322A	Pad, Rear Left Side	(1)
○	5	SPNG5320A	Pad, Front Left Side	(1)
○	6	SPNG1419A	Top Case	(1)
	7	SPHG220A	Polyethlene Bag	(1)
○	8	SPNG5328A	Pad, Cabinet	(2)
○	9	SPNG3041A	Prop	(4)
○	10	SPNG1421A	Packing Parts Ass'y, Side Panel	(1)
○	10 MC	SPNG1439A	Packing Parts Ass'y, Side Panel	(1)
○	11	SPNG5327A	Pad, Rear Right Side	(1)
○	12	SPNG5325A	Pad, Front Right Side	(1)
○	13	SPNG5326A	Pad, Rear Left Side	(1)
○	14	SPNG5324A	Pad, Front Left Side	(1)
○	15	SPNG1420A	Bottom Case	(1)
○	16	SPNG3040A	Frame	(1)
	17	SZTJPB19HC	Band	(2)
○	18	SPSG50A	Band	(2)
	19	SPNG5161A	Spacer, Top Cover	2
	20	SPHG24	Protection Cover	1
○	21	SPEG1073C	Packing Parts Ass'y, Bench	1
○	21 MC	SPEG1073B	Packing Parts Ass'y, Bench (MC)	1

ARRANGEMENT OF CONTROL PANEL



All buttons and tablets are equipped with LEDs which light up when in operation.

Tablet



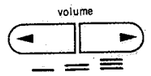
- Turns off when this part is pressed.
- The LED lights up and the tablet turns on when this part is pressed.

Controls

The volumes and effects on the organ are controlled by 2-or 3-stage buttons, except for rhythm tempo controls.

Volume

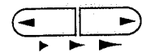
- Pressing the right button increases the volume and the LED on the button lights up.
- Pressing the left button decreases the volume and the LED on the button lights up.
- If you press both buttons simultaneously, the LEDs go out and the volume returns to the normal (intermediate) level.



- Pressing this button increases the volume and the LED on the button lights up.
  Pressing it again causes the LED to go off and the volume to return to the normal level.

Effect

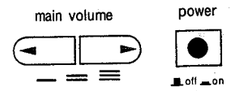
- Press the right button to increase such effects as Sustain, and the left button to decrease them. If you press both buttons simultaneously, the effects return to the intermediate levels.

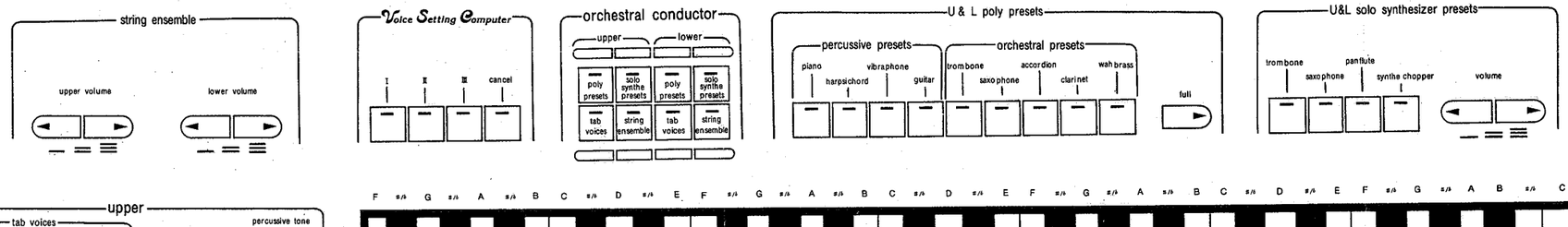


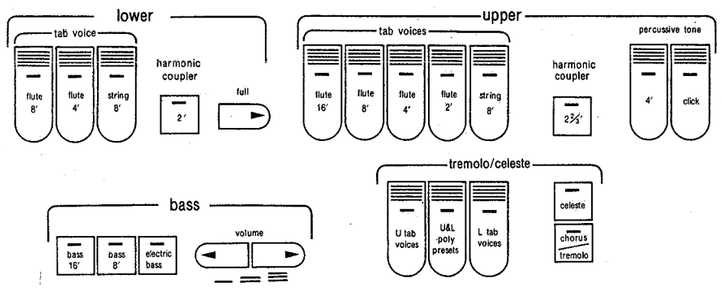
Power/Main Volume Controls

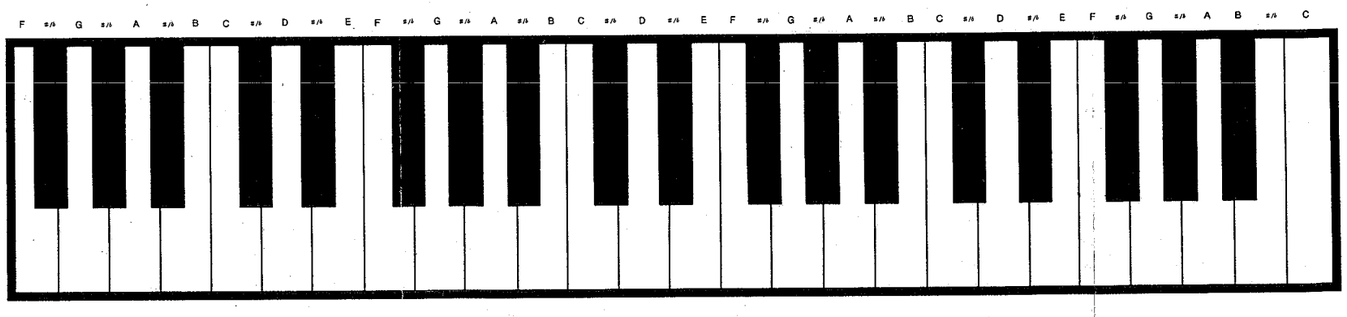
Pressing the power switch turns the organ on.

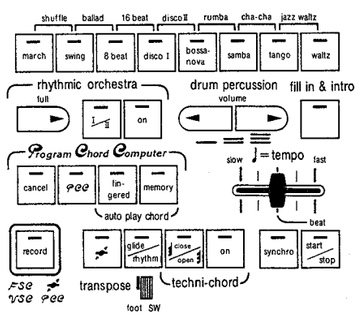
Main Volume adjusts the loudness of the entire organ.

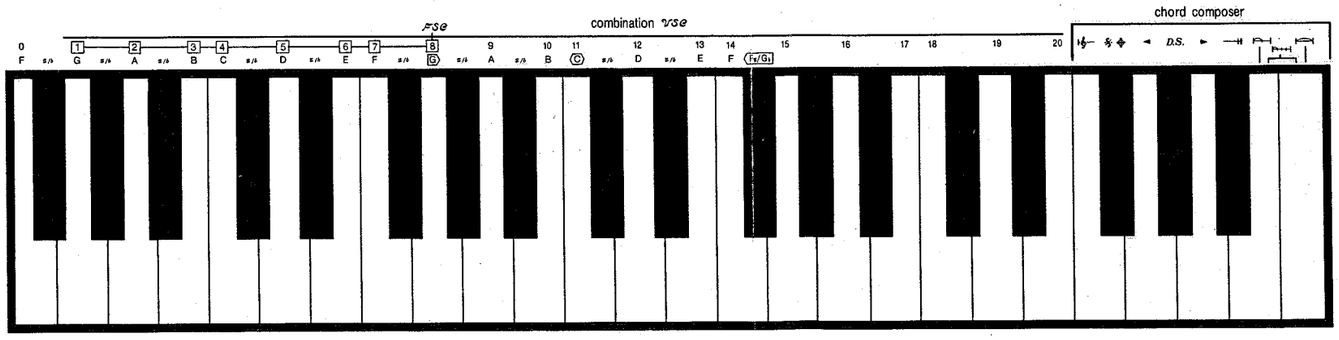


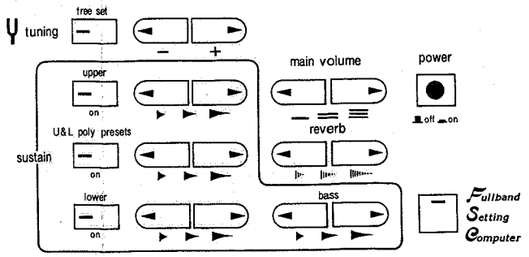










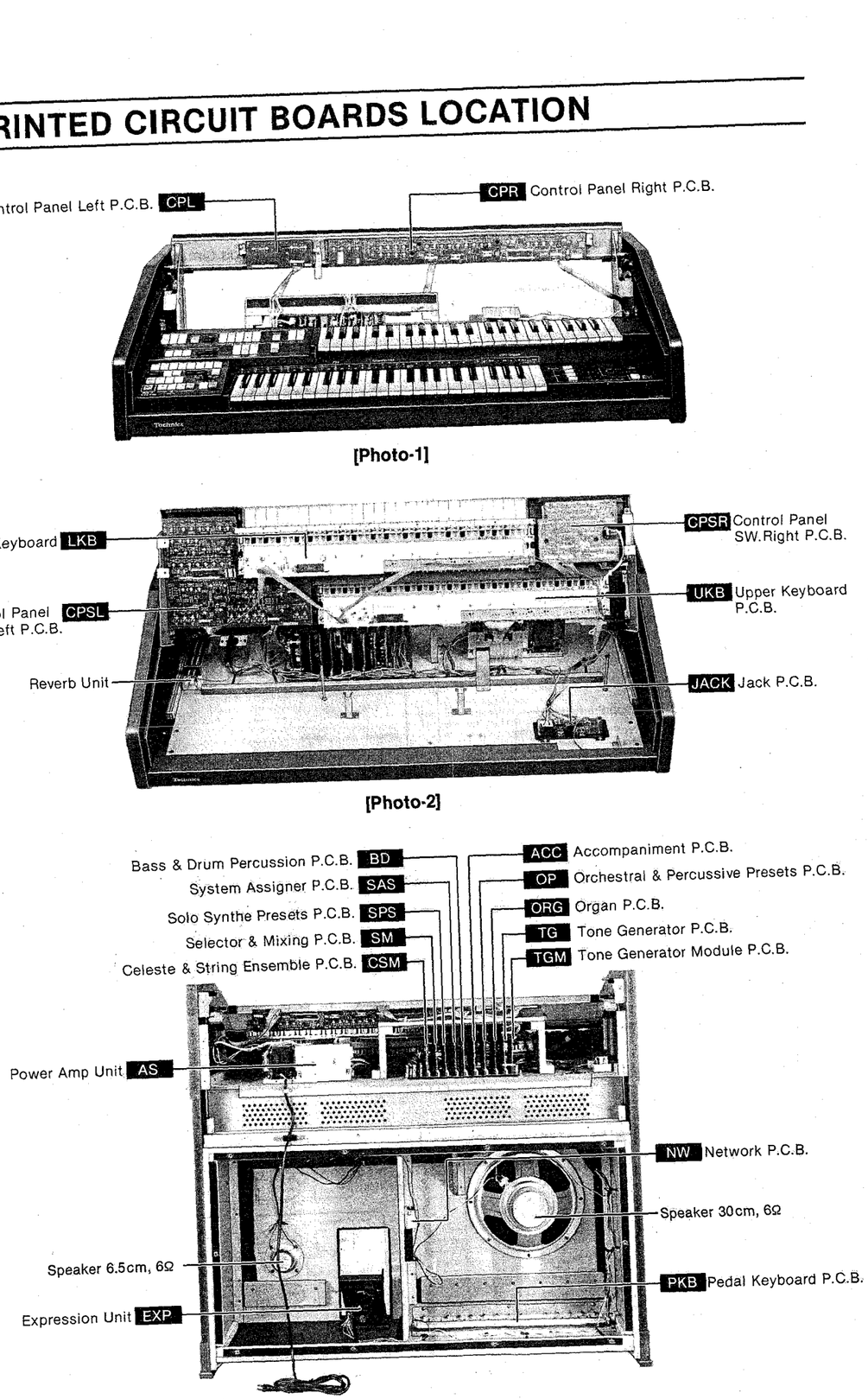


PRINTED CIRCUIT BOARDS LOCATION

[Photo-1]

Lower Keyboard P.C.B. LKB
Control Panel SW. Left P.C.B. CPSL
Reverb Unit
CPSR Control Panel SW.Right P.C.B.
UKB Upper Keyboard P.C.B.
JACK Jack P.C.B.

[Photo-2]

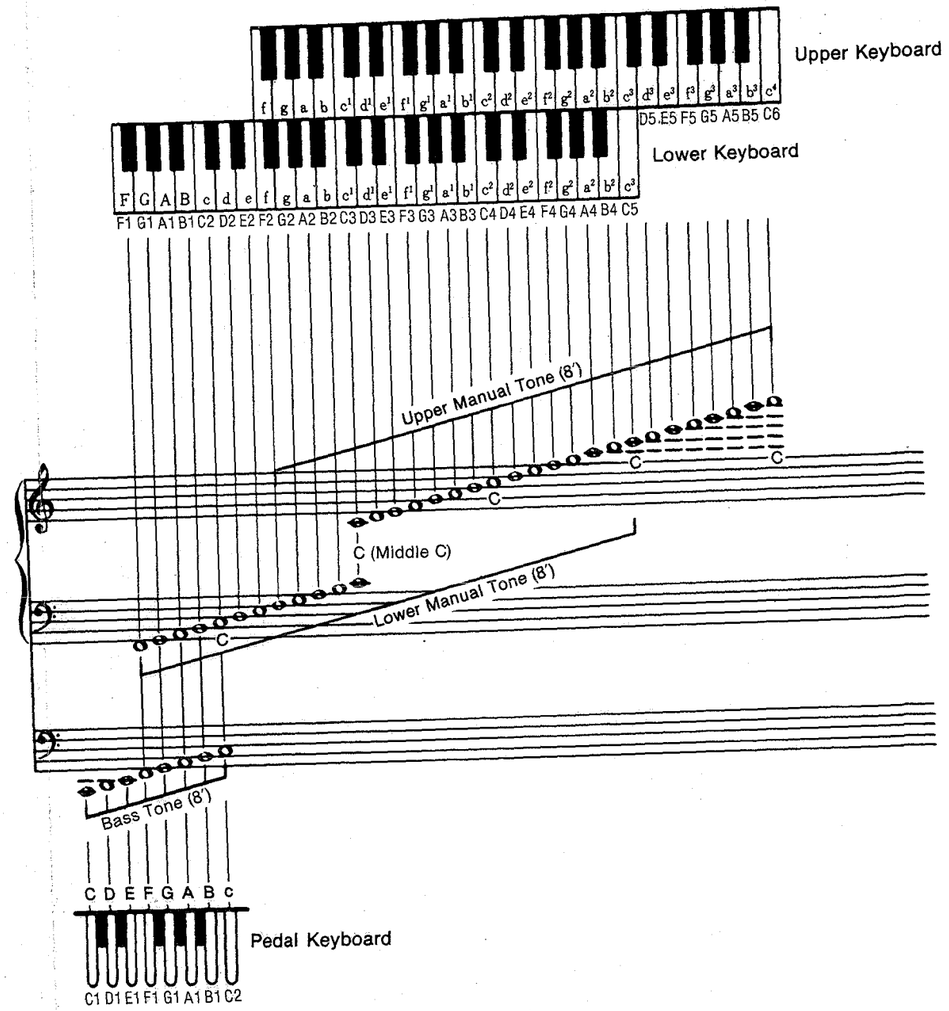

Bass & Drum Percussion P.C.B. BD
System Assigner P.C.B. SAS
Solo Synthe Presets P.C.B. SPS
Selector & Mixing P.C.B. SM
Celeste & String Ensemble P.C.B. CSM
ACC Accompaniment P.C.B.
OP Orchestral & Percussive Presets P.C.B.
ORG Organ P.C.B.
TG Tone Generator P.C.B.
TGM Tone Generator Module P.C.B.
Power Amp Unit AS
NW Network P.C.B.
Speaker 30cm, 6Ω
Speaker 6.5cm, 6Ω
PKB Pedal Keyboard P.C.B.
Expression Unit EXP

[Photo-3]

KEYBOARD RANGES

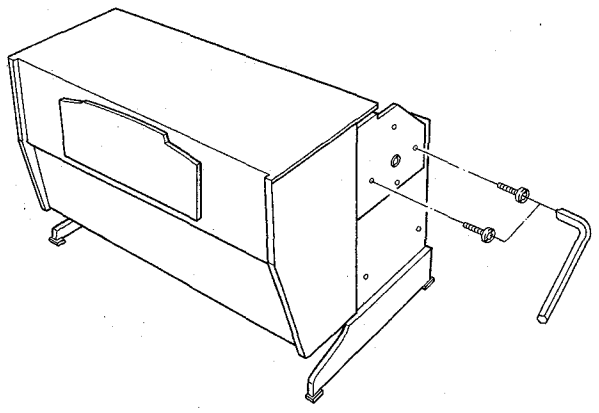
Upper Keyboard	44 Keys	f to c^4 ($3^2/_3$ Octaves)
Lower Keyboard	44 Keys	F to c^3 ($3^2/_3$ Octaves)
Pedal Keyboard	13 Keys	C to c (1 Octave)

※ An 8-feet compass is used for each keyboard.


Upper Keyboard
f g a b c¹ d¹ e¹ f¹ g¹ a¹ b¹ c² d² e² f² g² a² b² c³ d³ e³ f³ g³ a³ b³ c⁴
D5 E5 F5 G5 A5 B5 C6
Lower Keyboard
F G A B c d e f g a b c¹ d¹ e¹ f¹ g¹ a¹ b¹ c² d² e² f² g² a² b² c³
F1 G1 A1 B1 C2 D2 E2 F2 G2 A2 B2 C3 D3 E3 F3 G3 A3 B3 C4 D4 E4 F4 G4 A4 B4 C5
Upper Manual Tone (8')
C
C
C (Middle C)
Lower Manual Tone (8')
C
Bass Tone (8')
C D E F G A B c
Pedal Keyboard
C1 D1 E1 F1 G1 A1 B1 C2

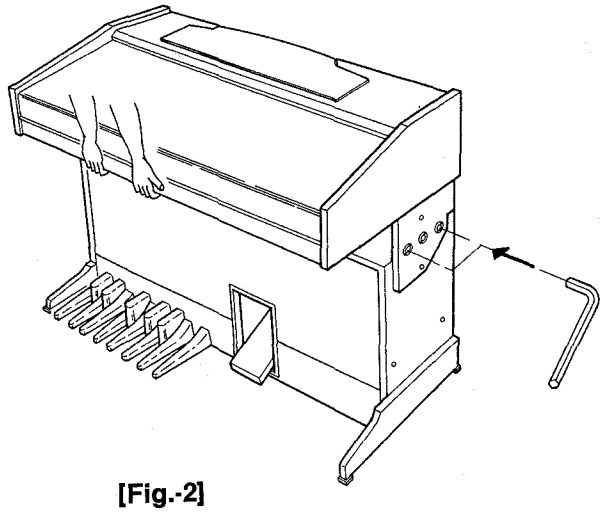
HOW TO ASSEMBLE THE ORGAN

1. Remove the red screws using the supplied wrench.



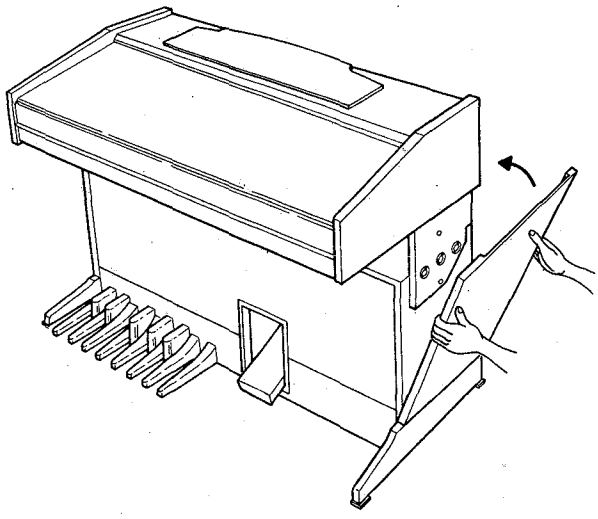
[Fig.-1]

2. Holding the upper cabinet section, lift it into position and tighten the red screws firmly.



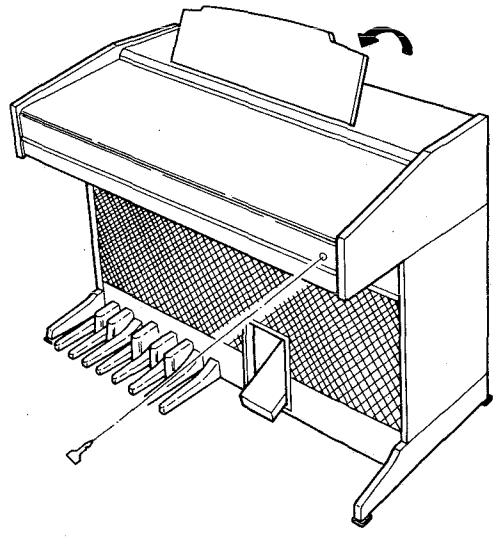
[Fig.-2]

3. Hold each side panels with both hands and install the side panel on the side board of cabinet.



[Fig.-3]

4. Unlock the sliding cover with the accessory key.



[Fig.-4]

■CAUTION

Voltage

Be sure the voltage adjuster at the right, below your organ, is in accordance with local voltage in your area before using this unit. Use a screwdriver to set the voltage adjuster to the local voltage. (There is no voltage adjuster for some countries; the correct voltage is already set.)

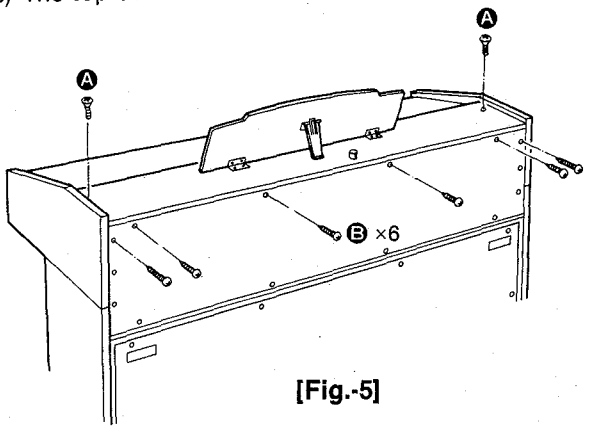
Folding Down

Before folding the upper cabinet section, be sure to lock the key.

DISASSEMBLY INSTRUCTIONS

1. Top Cover

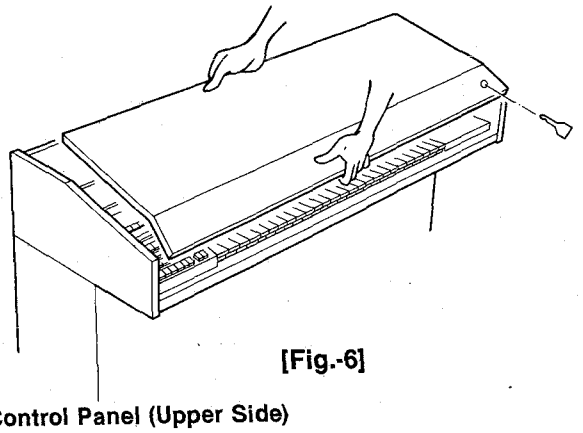
a) Remove the 2 setscrews Ⓐ located on the right and left side of the top cover.
b) Remove the 6 setscrews Ⓑ located on the rear panel.
c) The top cover can be remeved upwards.



[Fig.-5]

2. Sliding Cover

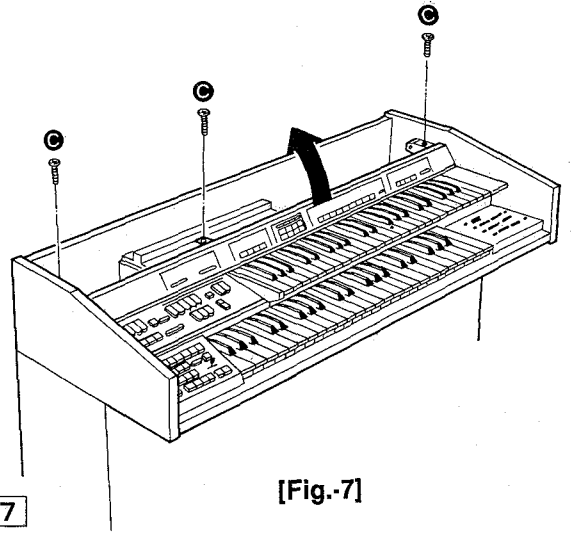
a) Unlock the sliding cover with the accessory key.
b) After removing the top cover, remove the sliding cover in its fully-closed position.



[Fig.-6]

3. Control Panel (Upper Side)

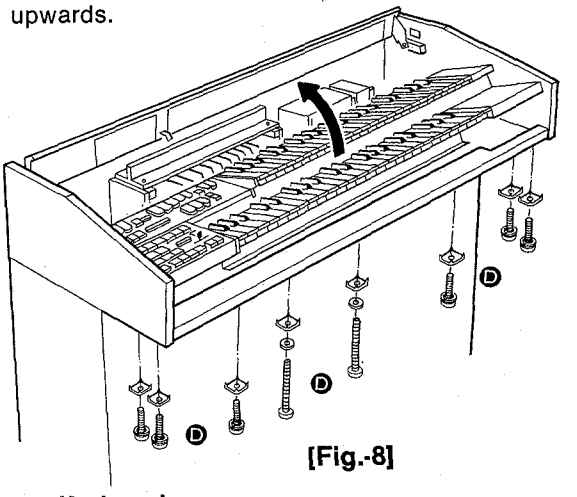
a) Remove both top cover and sliding cover according to procedures 1 and 2.
b) Remove the 3 red screws Ⓒ which fasten the control panel.
c) Then the control panel can be open upwards.



[Fig.-7]

4. Keyboard & End Cover Unit

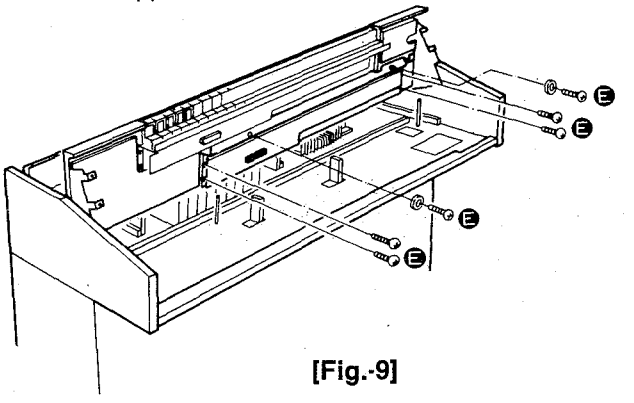
a) Open the control panel according to procedures 1, 2 and 3.
b) Remove the 8 setscrews Ⓓ on the bottom of the shelf-board.
c) Then the keyboard & end cover unit can be opened upwards.



[Fig.-8]

5. Upper Keyboard

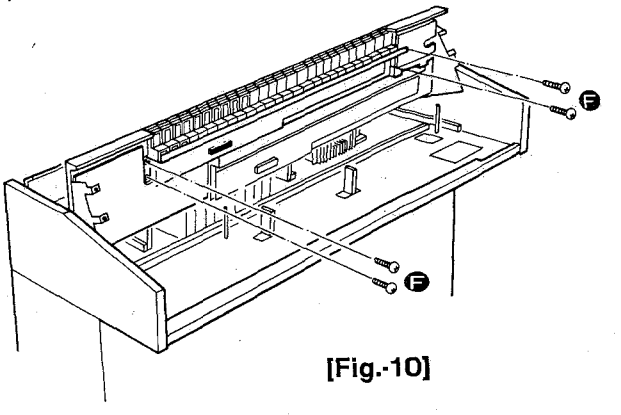
a) Open the keyboard and end cover unit according to procedure 4.
b) Remove the 6 setscrews Ⓔ which fasten the upper keyboard chassis.
c) Then the upper keyboard can be removed.



[Fig.-9]

6. Lower Keyboard

a) Open the keyboard and end cover unit according to procedure 4.
b) Remove the 4 setscrews Ⓕ which fasten the lower keyboard chassis.
c) Then the lower keyboard can be removed.

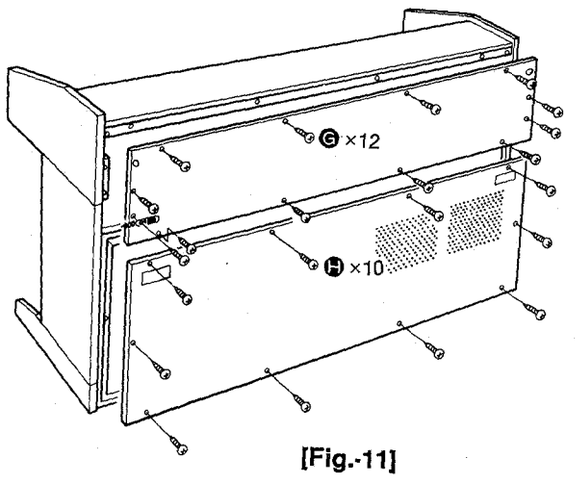


[Fig.-10]

7. Rear Panel

a) Upper cabinet section
Remove the 12 setscrews Ⓖ on the rear panel.

b) Lower cabinet section
Remove the 10 setscrews Ⓗ on the rear panel.



[Fig.-11]

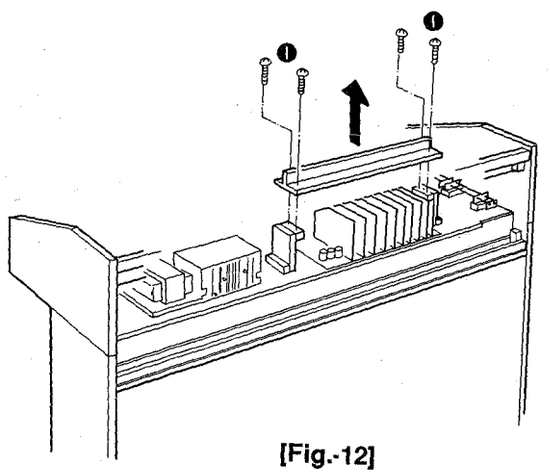
8. Printed Circuit Board (Mother Board Block)

a) Open the control panel according to procedures 1, 2 and 3.

b) Remove the rear panel of the upper cabinet.

c) Remove the 4 setscrews Ⓘ on the printed circuit board retainer plate.

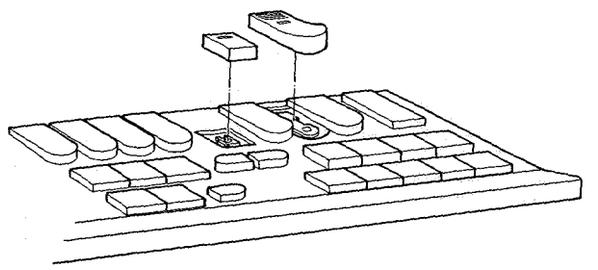
d) Each printed circuit board can be removed from the connector of the mother board.



[Fig.-12]

9. Buttons and Knobs

a) All buttons and knobs can be pulled out.



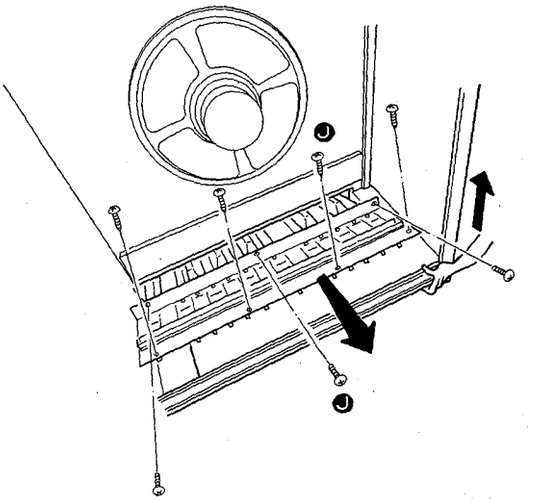
[Fig.-13]

10. Pedal Keyboard

a) Remove the rear panel of the lower cabinet.

b) Remove the 7 setscrews Ⓙ which fasten the pedal keyboard chassis.

c) Lift the cabinet body, and remove the pedal keyboard from the bottom plate of the cabinet.



[Fig.-14]

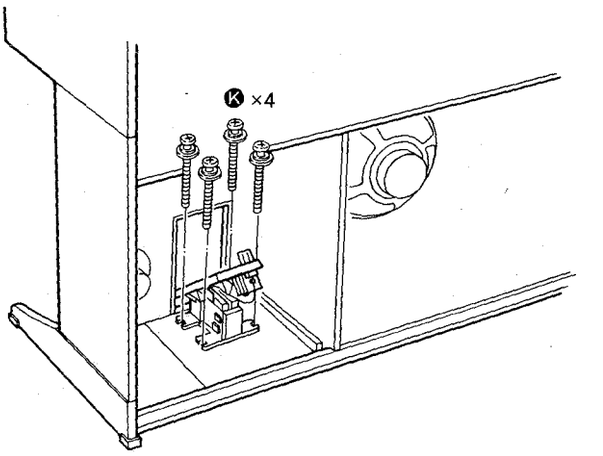
11. Expression Unit

a) Remove the rear panel of the lower cabinet.

b) Remove the 4 setscrews Ⓚ which fasten the expression unit.

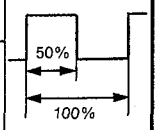
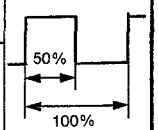
c) The expression unit can be removed.

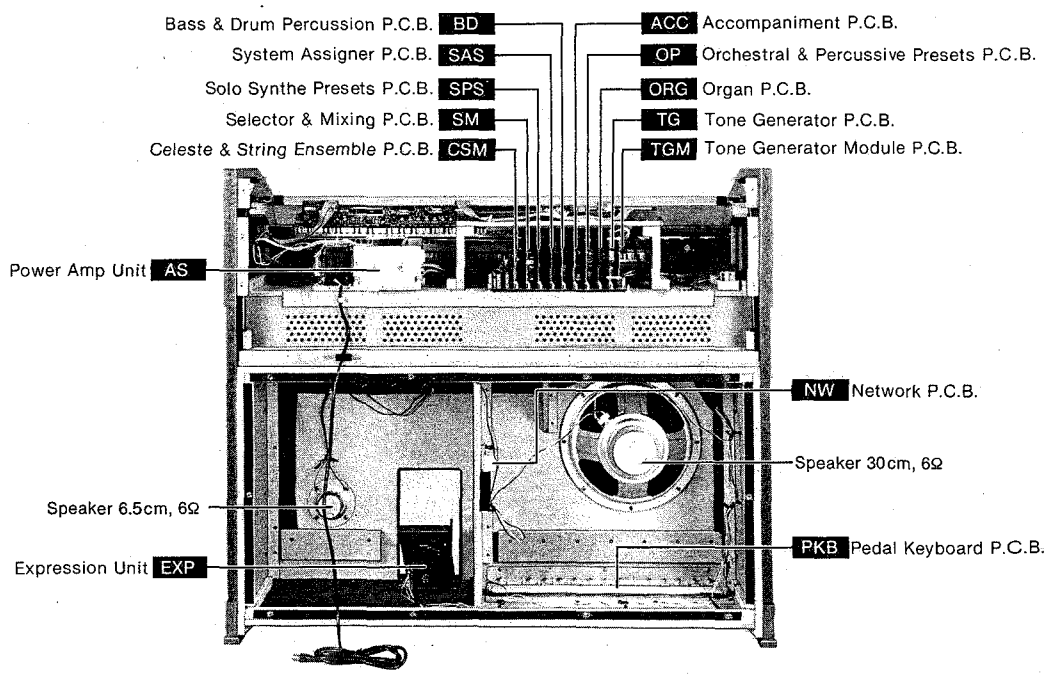
d) When replacing the expression lamp, remove the lamp retainer rubber and detach the lamp from the socket.



[Fig.-15]

MEASUREMENTS AND ADJUSTMENTS

ADJUSTMENT	SETTING	METER USED	ADJUSTMENT CIRCUIT BOARD	ADJ. POINT	CONNECT METER TO	METER READING
Tuning (tab)	tuning (free set) .....off u. orch. conductor .....tab voices upper voices .....flute 8′ upper keyboard .....A3 key	Oscilloscope, Frequency counter	Tone Generator Circuit	VR1	30cm Speaker	(440±1Hz)
	1. Connect an oscilloscope to MCTC terminal of tone generator P.C.B. and adjust VR1 so that the duty ratio of output waveform is 50%. 2. Connect a frequency counter to 30cm speaker and make the setting as mentioned here, then confirm the frequency is 440Hz.					
Tuning (mono-tone)	tuning (free set) .....off pedal voices .....bass 8′ pedal keyboard .....A1 key	Frequency counter	Tone Generator Circuit	VR2	30cm Speaker	(110Hz)
	1. Connect an oscilloscope to MCMC terminal of tone generator P.C.B. and adjust VR2 so that the duty ratio of output waveform is 50%. 2. Connect a frequency counter to 30cm speaker and make the setting as mentioned here, then confirm the frequency is 110Hz.					
Reverb depth	u. orch. conductor .....tab voices upper voices .....flute 4′, 8′, 16′ reverb .....max upper keyboard .....C3∼B3 (only for natural key)	Electric voltmeter	Selector & Mixing Circuit	VR1	JP17 or VR1	60mV
Output level (manual)	u. orch. conductor .....tab voices upper voices .....flute 4′, 8′, 16′ main volume .....max expression pedal .....max upper keyboard C3, E3, G3	Electric voltmeter	Selector & Mixing Circuit	VR2	30cm speaker	2.5Vrms
Pedal level	pedal voices .....bass 8′ main volume .....max expression pedal .....max bass volume .....max pedal keyboard .....A1 key	Electric voltmeter	Bass & Drum Percussion Circuit	VR1	30cm speaker	3.5Vrms
Expression characteristics	u. orch. conductor .....tab voices upper voices .....flute 4′, 8′, 16′ main volume .....max expression pedal .....min∼max upper keyboard C3, E3, G3	Electric voltmeter	System Assigner Circuit	VR1	30cm speaker	−35dB
	Adjust VR1 of system assigner so that the change in output is 35dB when the expression pedal is shifted from the minimum to maximum.					


Bass & Drum Percussion P.C.B. BD
System Assigner P.C.B. SAS
Solo Synthe Presets P.C.B. SPS
Selector & Mixing P.C.B. SM
Celeste & String Ensemble P.C.B. CSM
ACC Accompaniment P.C.B.
OP Orchestral & Percussive Presets P.C.B.
ORG Organ P.C.B.
TG Tone Generator P.C.B.
TGM Tone Generator Module P.C.B.
Power Amp Unit AS
NW Network P.C.B.
Speaker 30cm, 6Ω
Speaker 6.5cm, 6Ω
Expression Unit EXP
PKB Pedal Keyboard P.C.B.

PRECAUTIONS FOR REPAIR

Precautions for servicing

In the products of serial No. 583BOOOO, IC4 (ROM) used in system assigner P.C.B. and tone generator module P.C.B. are used in pair. The product is provided with a caution label for servicing. So, use the specified parts according to the caution during servicing.

Details of pair

	Special Parts	General Parts
System assigner P.C.B.	SXPG11274Z (ROM: SVIG27128Z)	SXPG11274 (ROM: SVIG23128218)
Tone generator module P.C.B.	SXPG11264Z	SXPG11264

The ROM of system assigner P.C.B. and the tone generator P.C.B. mentioned above are used in pair, and symbol "Z" is attached to the tail of part No.
When repairing the P.C.B., use a correct pair as in the above table or replace them with P.C.B. without "Z" at the tail of part No.

[Repair parts]

When placing an order for repair parts, be sure to specify the part No. that provide correct pairs.

■ Troubles often occur due to faulty operation of your electronic organ if you are not completely familiar with its mechanisms. Therefore, if your organ shows the following symptoms, please check the instrument before repair.

Symptom	Cause and measure
Lower keyboard on pedal keyboard keep sounding.	When fingered and memory button are ON, or PCC button is ON, while rhythm is OFF, if lower keyboard is played, then lower keyboard and pedal keyboard will keep sounding. • Please push the cancel button.
Nine or more keys of upper or lower keyboard are simultaneously depressed, only 8 keys make sound.	It is designed so that upper and lower keyboards can make sound only up to 8 keys when harmonic coupler is not provided. • Priority is given to 8 keys of higher-pitched sound.
Upper or lower keyboard makes sound only up to 4 tones.	With harmonic coupler provided, each keyboard can simultaneously sound only up to 4 tones. • Priority is given to 4 keys of higher-pitched sound.
Harmonic effect is not given.	Harmonic coupler is effective only when tab voice is individually used. For example, if tab voice is used in combination with string ensemble, then harmonic effect will not be given.
In flute 2′, the highest tone (C^4 key) is lowered by 1 octave.	The highest-pitched sound (C^4 key) of flute 2′ is in the same sound range as for the key (C^3) of 1 octave lower.
Lower-pitched (19 keys) sounds of upper keyboard are different in tone from the higherpitched (25 keys) sounds.	During memory operation of voice setting computer, transpose, and full-band setting computer, the tones and effects of lower keyboard can be checked by the 19 lower-pitched sound keys of upper keyboard.

Symptom	Cause and measure
Click sound is not made.	Click sound is made only with flute tablet selected. • It is not make by individual use of click tablet.
Orchestral preset sounds are not given sustain.	When sustain effect is applied to polypreset sound, only percussive preset buttons are given sustain. • Orchestral preset sounds are not given sustain.
When PCC button of program chord computer is used for chord memory operation, pressing the chord composer key makes the error sound — sharp whistle.	Data of one tune up to 74 chords can be stored in the program chord computer. The alarm is given by normal whistle at the 74th chord, and the error sound is givnen by sharp whisle at the 76th chord and over.
With synchro button depressed, rhythm does not start when accompaniment is played.	If rhythm is stopped by foot switch, synchro button will also turn OFF. • If rhythm is stopped by foot switch, synchro button must be turned ON. • During the play mode of auto play chord, synchro start is not possible with pedal keyboard.
Rhythm and fill-in patterns spontaneously change.	To make the play variegated, the bass pattern is designed to change spontaneously during drum percussion, rhythmic orchestra or auto play mode. It is also designed so that the fill-in does not continue the same pattern.
Memory operations of transpose, program chord computer, full-band setting computer, and voice setting computer are not possible.	Record button turns off making memory operation impossible unless a proper button is not depressed within 5sec. after depressing record button. • Select a proper button while indicator is blinking with record button depressed.
Data stored into voice setting computer, transpose, program chord computer, and full-band setting computer go out.	If the organ is left for more than one week with the switch tuned off or the power cord disconnected after storing the data, the stored data will go out. • To keep data stored in the memory for a long period of time, switch on the organ once a week at least for more than 10min.
Tuning is deflected from the standard pitch.	If the pitch adjust button (−, +) is lighted with free set button ON, then turning is deflected from the standard pitch (440Hz). Tuning pitch changes about 0.3Hz each time the button is pushed. It changes in a range of 438Hz—446Hz. Also LED blinks at the upper and lower limits of the range. • To play with it returned to the standard pitch, turn off the free set button.

REGISTRATION FOR 20 COMBINATION VSC

20 combination VSC

Combinations of original tones and effects are preset in this unit. You can select the desired tones by the lower keyboard keys marked with 1—20, and store them by use of buttons I, II and III of the voice setting computer.
The tones mentioned below are preset in the keyboard (1—20). The combinations of the selected tones and effects are displayed by LED's on the control panel. The ∗-marked tones and effects are not displayed on the control panel.

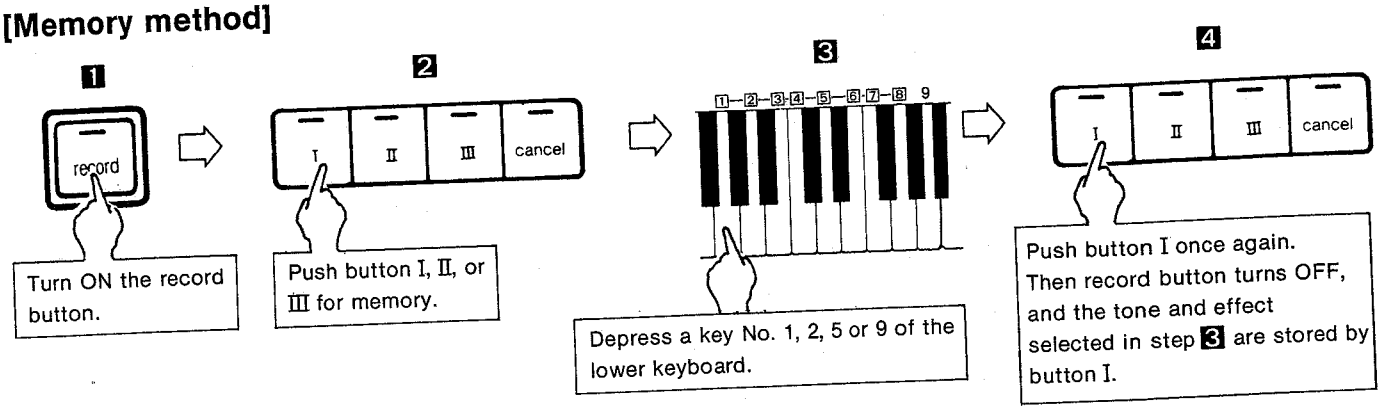
Combination VSC		Orchestral Conductor	Upper	Lower	Bass	Effect
1	Theater Organ	upper: tab voices	flute 16′, 8′, 4′, 2′, *1′		bass 16′, 8′	tremolo: U. tab L. tab sustain: upper
		lower: tab voices		flute 8′, 4′		
2	Church Organ	upper: tab voices	flute 16′, 8′, 4′, 2′, *1′ * slow attack		bass 16′, 8′	chorus: U. tab L. tab
		lower: tab voices		flute 8′, 4′, *2′ * slow attack		
3	Pop Organ I	upper: tab voices	flute 16′, 4′ harmonic coupler $2^2/_3$′		bass 8′	chorus: U. tab L. tab
		lower: tab voices		flute 8′, 4′		
4	Pop Organ II	upper: tab voices	flute 16′, 4′ * decay percussive tone 4′		bass 16′, 8′	chorus: U. tab L. tab sustain: upper flute 4′
		lower: tab voices		flute 8′, 4′		
5	Rock Organ	upper: tab voices	flute 16′, 8′, 4′, 2′, *1′ percussive tone 4′ harmonic coupler $2^2/_3$′		bass 8′	chorus: U. tab L. tab
		lower: tab voices		flute 8′, 4′		
6	Jazz Organ	upper: tab voices	flute 16′ percussive tone 4′, click harmonic coupler *$5^1/_3$′		bass 16′, 8′	chorus: U. tab L. tab
		lower: tab voices		flute 8′, 4′		
7	Classical Strings	upper: tab voices	flute 8′, string 8′ * slow attack		bass 8′	celeste: U. tab L. tab sustain: bass (long)
		lower: tab voices		flute 8′, string 8′ * slow attack		
8	Classical Ensemble	upper: tab voices	flute 8′, 4′, string 8′ * slow attack		bass 8′	celeste: U. tab L. tab
		poly presets	harpsichord			
		lower: tab voices		flute 8′ * slow attack		
		string ensemble		string ensemble		
9	Pop Ensemble <I>	upper: tab voices	flute 16′, *1′ * slow attack		bass 16′, 8′	chorus: U. tab L. tab
		poly presets	piano...full			
		lower: tab voices		flute 8′, 4′ * slow attack		
10	Pop Ensemble <II>	upper: solo presets string ensemble	panflute...volume: max string ensemble		bass 8′	celeste: U & L poly presets L. tab voices
		lower: tab voices poly presets string ensemble		flute 8′ harpsichord string ensemble		

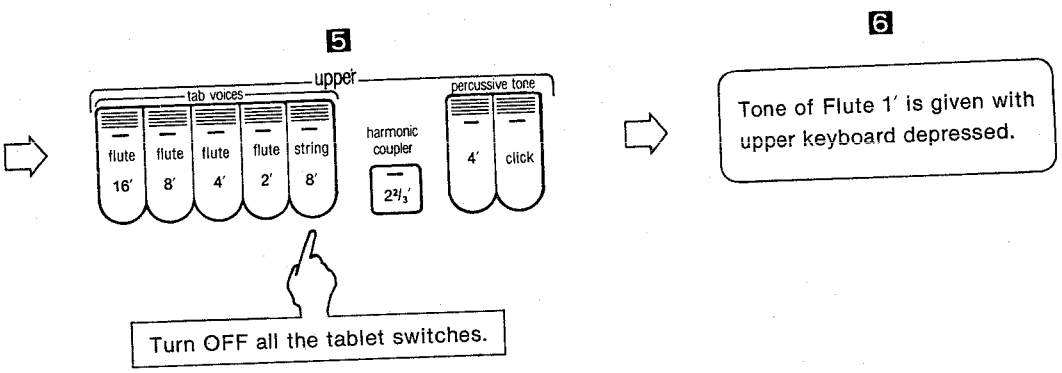
Combination VSC	Orchestral Conductor	Upper	Lower	Bass	Effect
11 Soft Brass	upper: poly presets solo presets	trombone...full trombone		bass 8′	celeste: L. tab voices
	lower: tab voices		flute 8′, 4′ string 8′		
12 Big Band Brass	upper: poly presets solo presets	saxophone...full saxophone		bass 16′, 8′	celeste: L. tab voices
	lower: tab voices		flute 8′, 4′		
13 Marching Brass	upper: poly presets solo presets	trombone...full panflute		bass 16′, 8′	celeste: L. tab voices
	lower: tab voices		flute 8′, 4′...full		
14 Synthe Brass	upper: tab voices poly presets solo presets	flute 16′, 8′ wah brass...full saxophone...volume: min		electric bass	chorus: U. tab voices L. tab voices
	lower: tab voices		flute 8′, 4′ string 8′		
15 Fusion Guitar	upper: poly presets solo presets	guitar...full synthe chopper ...volume: min		electric bass	chorus: U. tab voices L. tab voices
	lower: tab voices		flute 8′, 4′		
16 New Wave	upper: tab voices poly presets solo presets	flute 16′, percussive tone 4′, click saxophone...full synthe chopper		electric bass	celeste: U. tab voices L. tab voices U & L poly presets
	lower: tab voices		flute 8′, 4′		
17 Funk Rock	upper: poly presets solo presets	wah brass...full synthe chopper ...volume: min		bass 16′, 8′	chorus: L. tab voices
	lower: tab voices		flute 8′, 4′		
18 Jazz Guitar Combo	upper: tab voices poly presets	flute 16′, percussive tone 4′ guitar...full		bass 16′, 8′	chorus: U. tab voices L. tab voices U & L poly presets
	lower: tab voices		flute 8′ 4′		
19. Mix Combo	upper: tab voices poly presets solo presets	flute 16′, 4′ percussive tone 4′ trombone...full pan flute		bass 16′, 8′	chorus: U. tab voices L. tab voices
	lower: tab voices		flute 8′, 4′		
20 Ballade Sound	upper: tab voices poly presets solo presets	flute 4′ harpsichord pan flute		bass 16′, 8′	celeste: U. tab voices L. tab voices U & L poly presets
	lower: tab voices		flute 8′		

NOTE:

The tone of Flute 1′ is set in No. 1, 2, 5 and 9 of the 20 combinations. This is because the tone of Flute 1′ is written in ROM of system assigner and the signal is sent into the voice setting computer. In the case of operation mentioned below, the tone of Flute 1′ may be given with the upper keyboard depressed even when all the tablet switches are OFF. This is not a sign of trouble, so cancel it by the method mentioned later.

[Memory method]

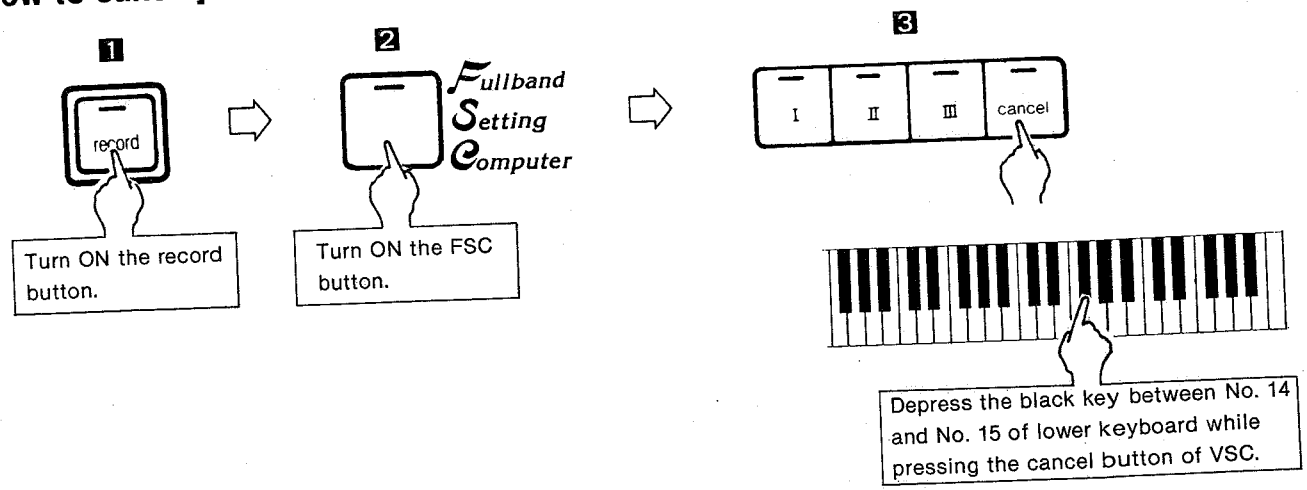

1
record
Turn ON the record button.
2
I
II
III
cancel
Push button I, II, or III for memory.
3
1 2 3 4 5 6 7 8 9
Depress a key No. 1, 2, 5 or 9 of the lower keyboard.
4
I
II
III
cancel
Push button I once again. Then record button turns OFF, and the tone and effect selected in step 3 are stored by button I.



After the above-mentioned steps 1—6, do the following and then Flute 1′ is stored by the cancel button of VSC.

7 Push "record" button.
8 Push "FSC" button.
9 Push "cancel" button of VSC.
10 Tone of Flute 1′ is given with upper keyboard depressed.

[How to cancel]



In this case, the organ will be reset to the condition originally preset by the marker.

INTRODUCTORY REMARKS REGARDING SCHEMATIC DIAGRAMS

1. Important safety notice:

Components identified by ⚠ mark have special characteristics for safety.
When replacing any of these components, use only manufacturer's specified parts.

2. Signal lines

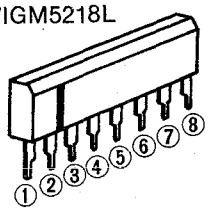
➡ Sound source signal or Tone signal
⇨ Control signal
⇢ Clock signal

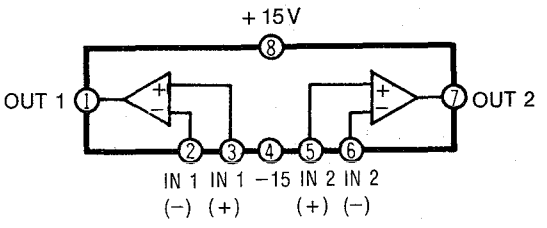
3. Terminal No. of operational amplifier

In this model, operational amplifiers with different number of terminals as shown below are used together.
Those mentioned in the circuit diagram are based upon the terminal No. of SVIGM5218L. Therefore, when checking a P.C.B. using SVIGNJM4558S, note that the terminal No. are different from those in the circuit diagram.

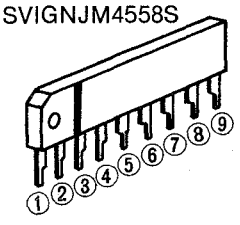
SHAPE | **IC BLOCK DIAGRAM** | **PCB SYMBOL MARK**

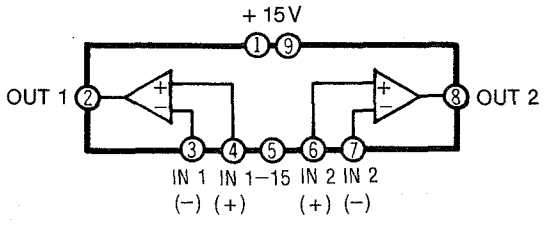
SVIGM5218L

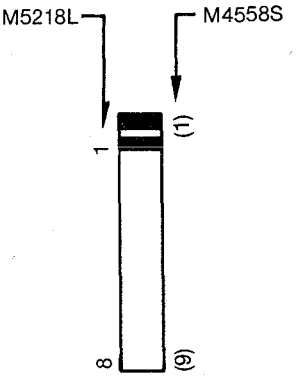




SVIGNJM4558S







4. Symbolic marks

The smbolic marks for resistors and capacitors, which are used in the circuits for this organ, are as follows.

■ Resistors

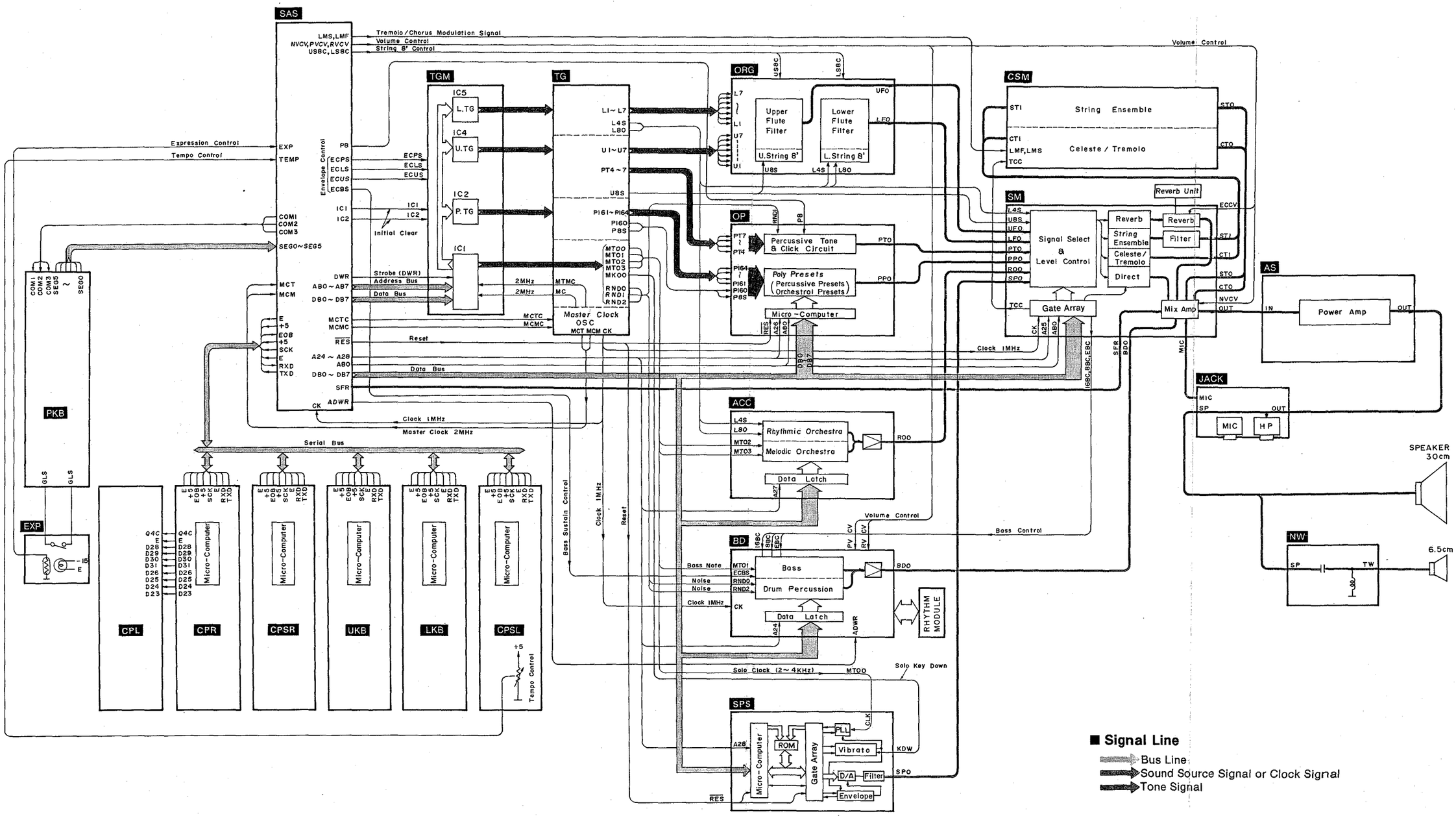
(1) Resistors without symbolic mark are FIXD CARBON FILM RESISTORS.
(2) All resistors are 1/4 WATT, ±5% TOLERANCE unless otherwise designated in the schematic diagram.
(3) Resistors with [F] symbolic mark are Flame-Proof resistors.
(4) All resistors are in OHMS (Ω) K = 1000Ω, M = 1000kΩ.

■ Capacitors

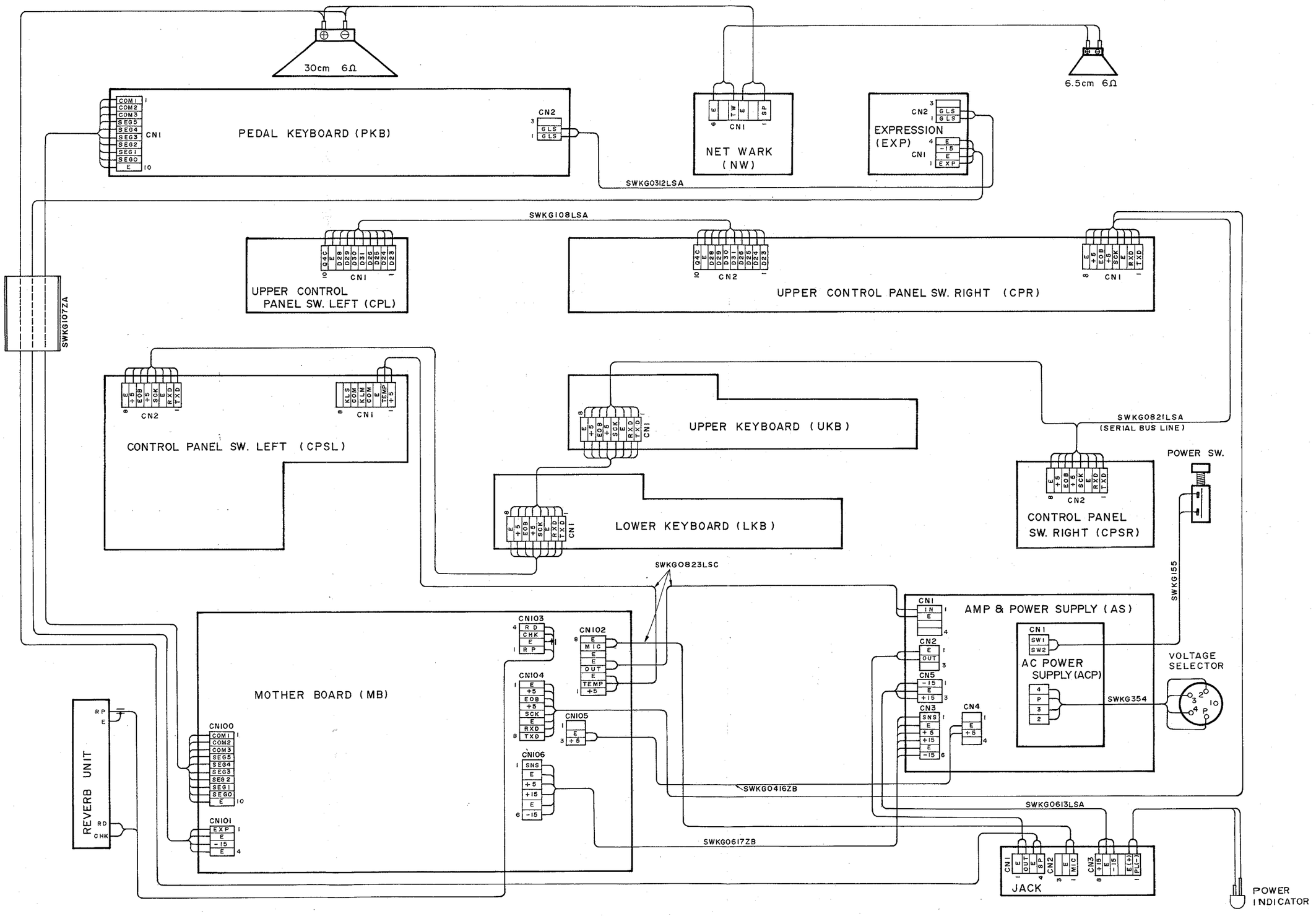
(1) Capacitors without symbolic mark are Polyester Film Capacitors (ECQM—type).
(2) Polarized capacitors without symbolic mark are Aluminum Electrolytic Capacitors. (ECEA—type).
(3) Others
- (TF) : TF capacitor (ECQV—type).
- (Z) : Aluminum Electrolytic Capacitor, (Z) series Low impedance type (ECEA—Z—type).
- (MS) : Aluminum Electrolytic Capacitor, (MS) series Low leakage current type (ECEA—M—type).
- (N) : Bi-Polarized Electrolytic Capacitor (ECEA—N—type), (ECEA—Y—type).
- O : Ceramic Capacitor (ECC—type), (ECK—type).

(4) All capacitors are microfarads unless otherwise specified in the schematic diagram.

BLOCK DIAGRAM

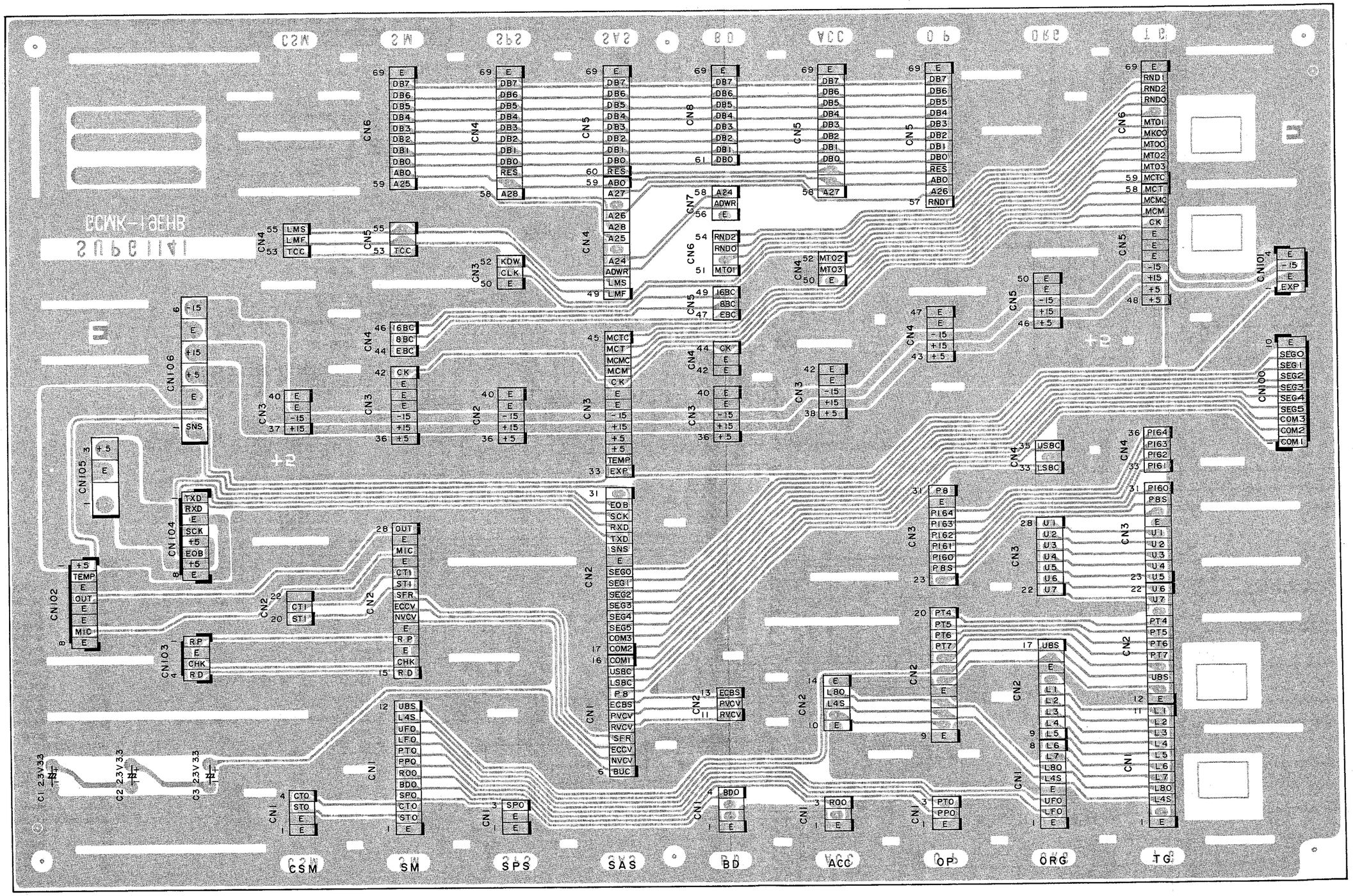


WIRING CONNECTION DIAGRAM



MOTHER CIRCUIT BOARD (MB)

SXPG11413

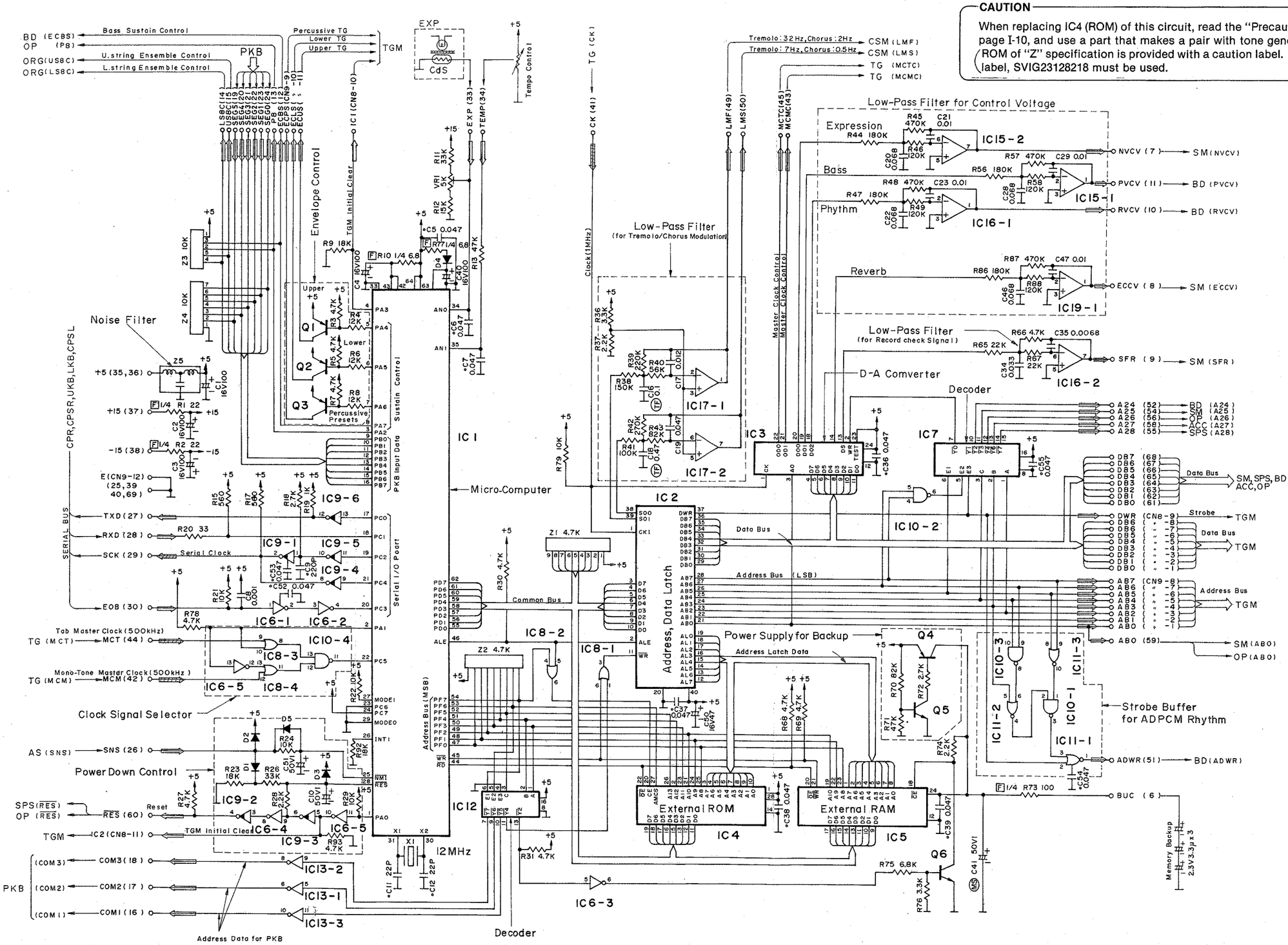


II-5 II-6

SYSTEM ASSIGNER CIRCUIT DIAGRAM (SAS)

CAUTION

When replacing IC4 (ROM) of this circuit, read the "Precautions for servicing" on page I-10, and use a part that makes a pair with tone generator module P.C.B. (ROM of "Z" specification is provided with a caution label. For ROM without this label, SVIG23128218 must be used.)

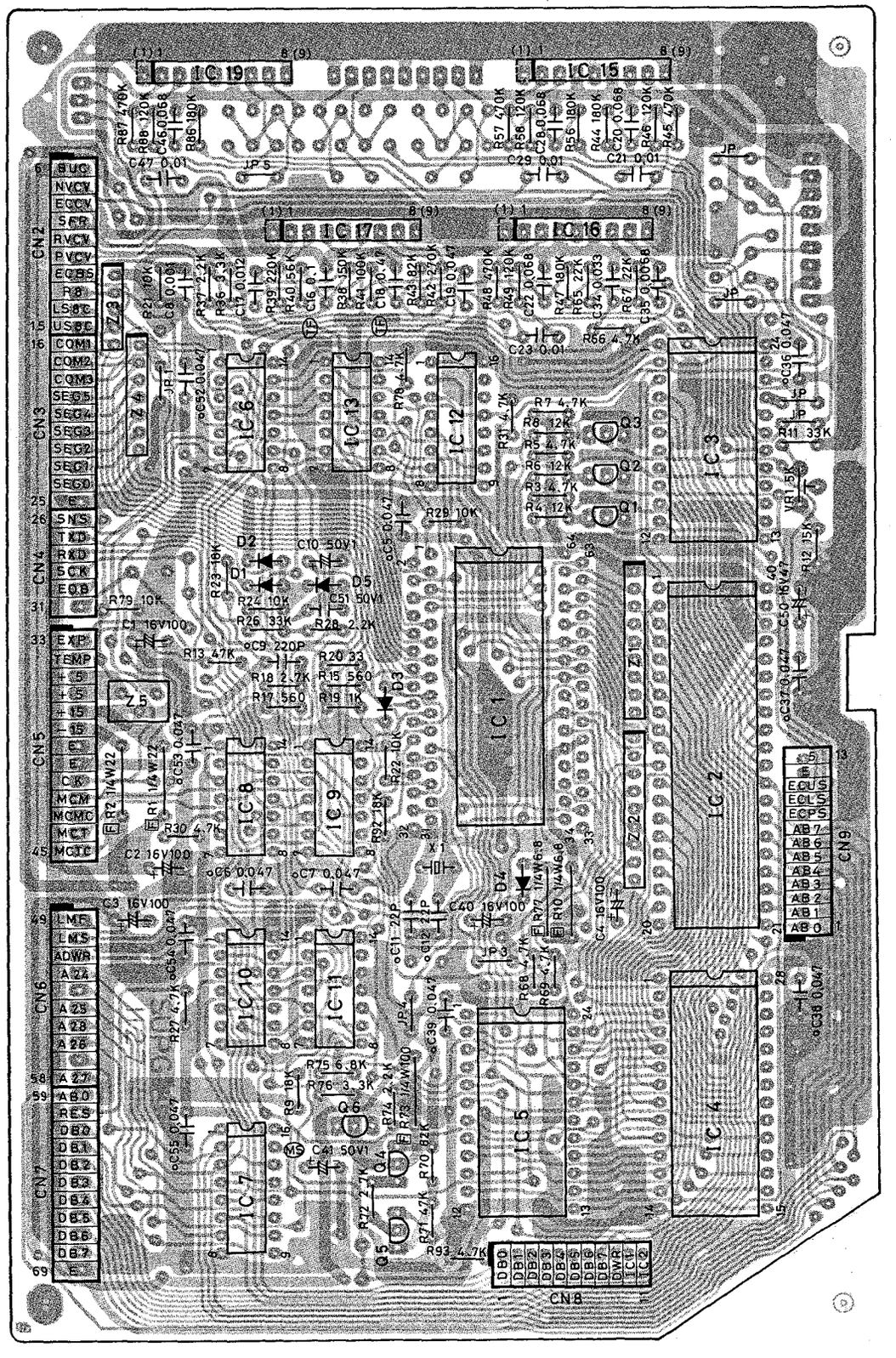


NOTES:

- IC'S
  - IC1: SVIG7811G028
  - IC2: SVIG65002014
  - IC3: SVIG65002017
  - IC4: SVIG23128218
  - IC5: SVIGM512820R
  - IC6, 13: SVIGTC40H004
  - IC7, 12: SVIGM74LS138
  - IC8: SVIGM74LS32
  - IC9: SVIGM53216
  - IC10: SVIGM74LS00
  - IC11: SVIGM74LS02
  - IC15~17, 19: SVIGM5218L (SVIGNJM4558S)
- TRANSISTORS
  - Q1~4: 2SA1015GR
  - Q5: 2SC2320LFG
  - Q6: 2SC1047C
- DIODES
  - D1~5: MA165TA5VT
- COMPONENTS COMBINATIONS
  - Z1, 2: EXBP88472MM
  - Z3: EXBP84103MM
  - Z4: EXBP86103MM
  - Z5: EXATA223S
- QUARTZ OSCILLATOR
  - X1: SVQG43U1200A

SYSTEM ASSIGNER CIRCUIT BOARD (SAS)

SXPG11274



NOTES:

- IC'S

IC1:	SVIG7811G028	IC7, 12:	SVIGM74LS138
IC2:	SVIG65002014	IC8:	SVIGM74LS32
IC3:	SVIG65002017	IC9:	SVIGM53216
IC4:	SVIG23128218	IC10:	SVIGM74LS00
IC5:	SVIGM512820R	IC11:	SVIGM74LS02
IC6, 13:	SVIGTC40H004	IC15~17, 19:	SVIGM5218L (SVIGNJM4558S)

- TRANSISTORS

Q1~4:	2SA1015GR
Q5:	2SC2320LFG
Q6:	2SC1047C

- DIODES

D1~5:	MA165TA5VT

- COMPONENTS COMBINATIONS

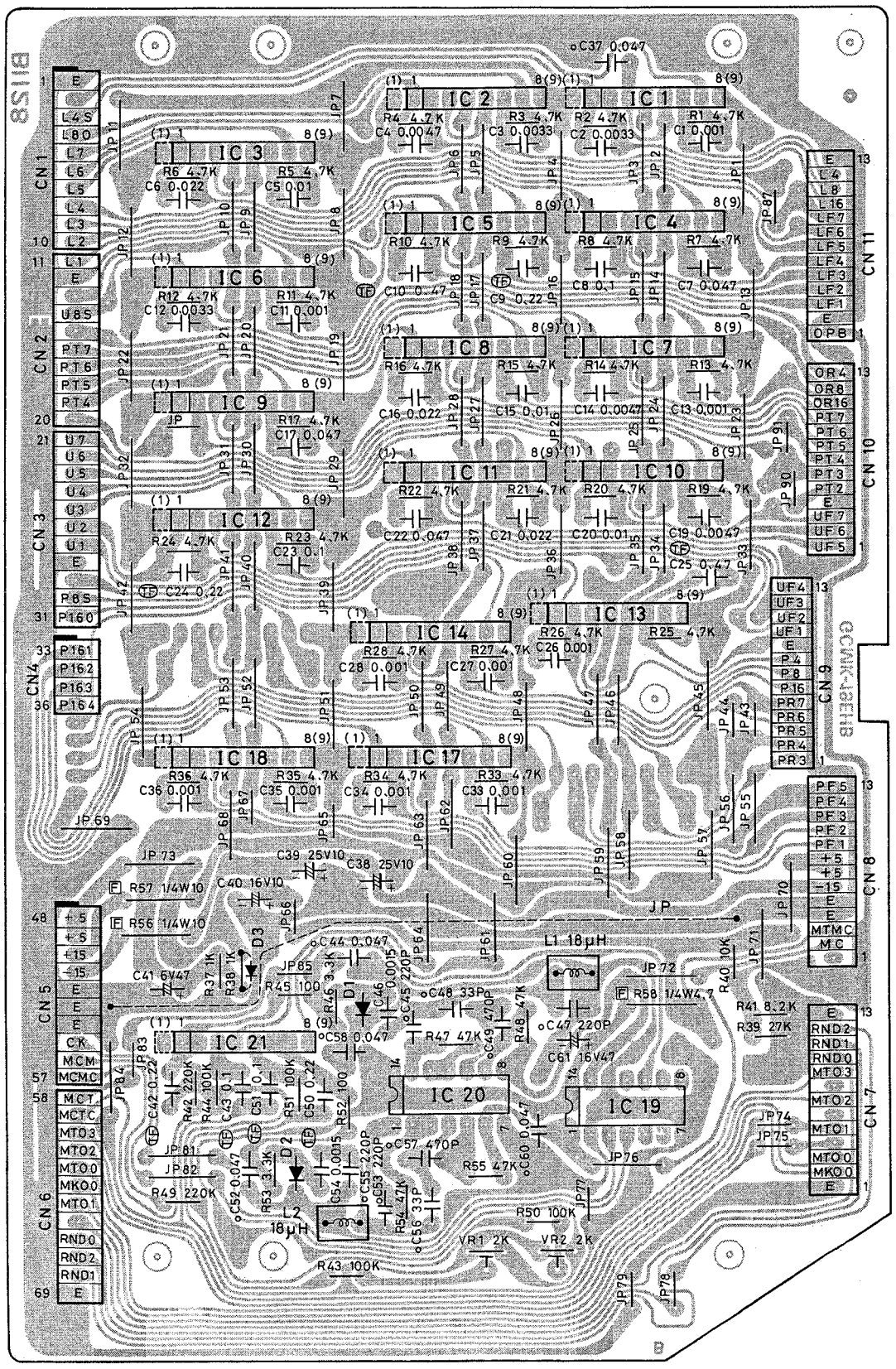
Z1, 2:	EXBP88472MM
Z3:	EXBP84103MM
Z4:	EXBP86103MM
Z5:	EXATA223S

- QUARTZ OSCILLATOR

X1:	SVQG43U1200A

TONE GENERATOR CIRCUIT BOARD (TG)

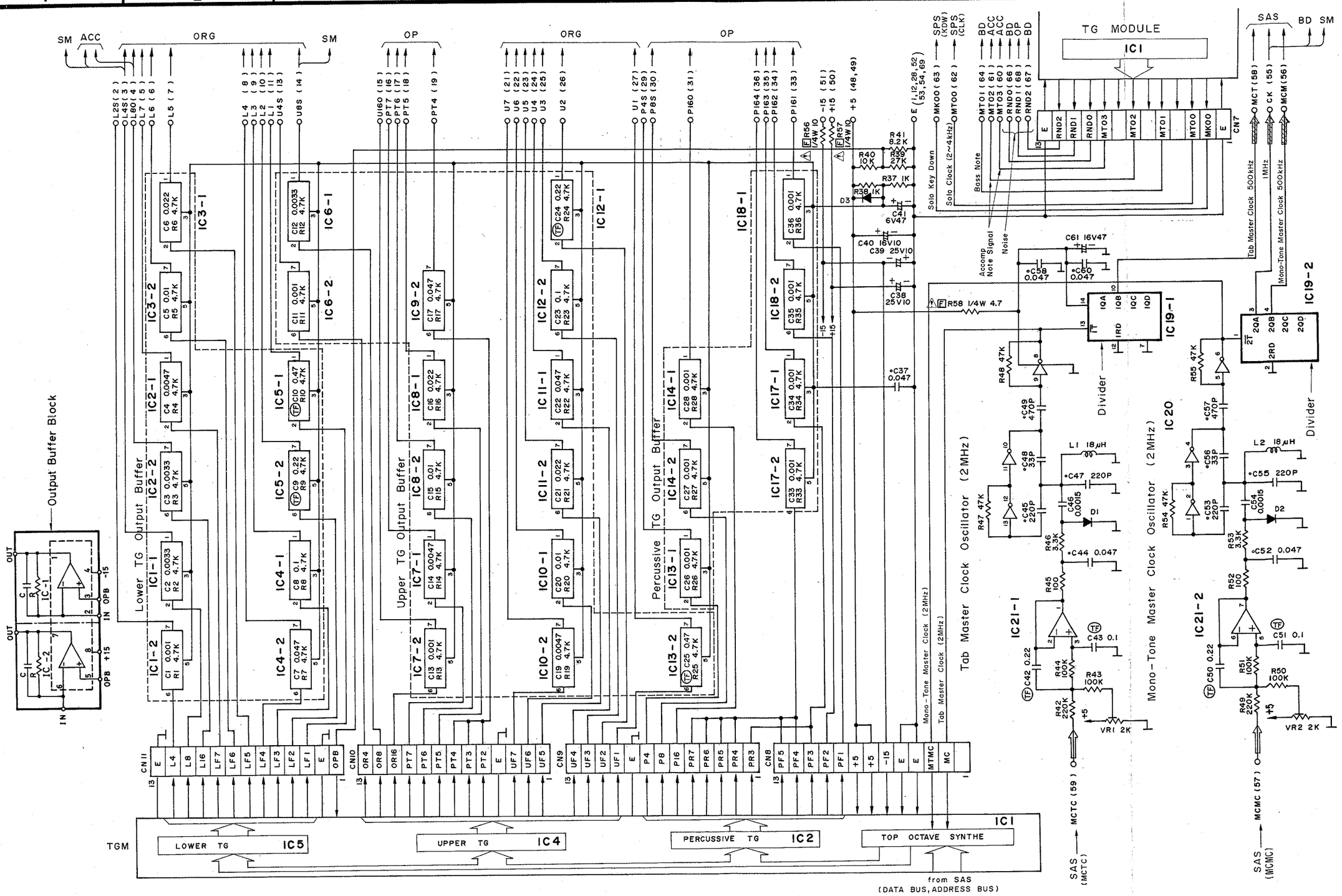
SXPGB11283



NOTES:

- IC'S
  - IC1~14, 17, 18, 21: SVIGM5218L (SVIGNJM4558S)
  - IC19: SVIGTC40H393
  - IC20: SVIGTC40H004
- DIODES
  - D1, 2: MA165TA5VT
  - D3: SVDGSM1A02LF
- COILS
  - L1, 2: ELQS180KB

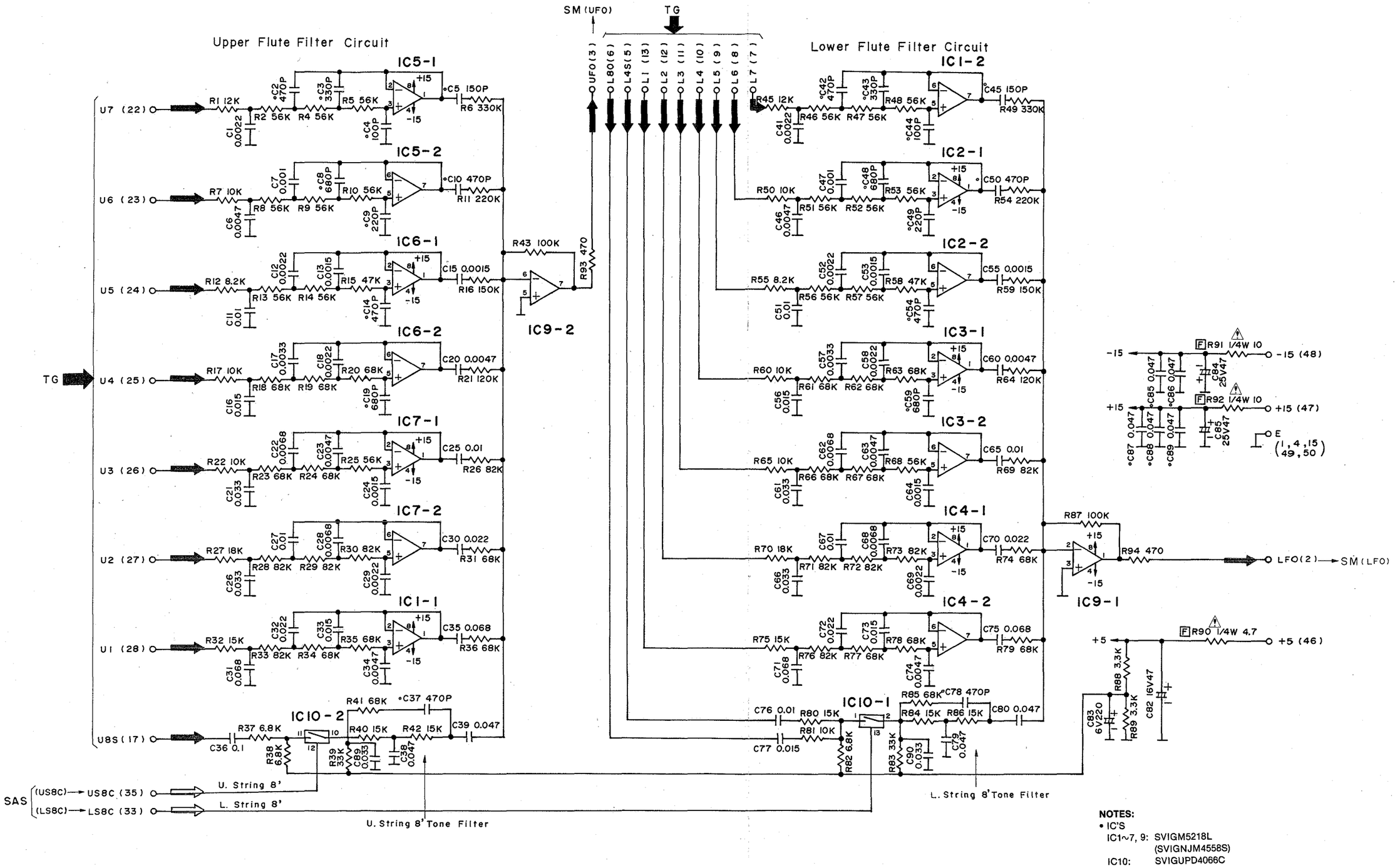
TONE GENERATOR CIRCUIT DIAGRAM (TG)



NOTES:

- IC'S
  - IC1~14, 17, 18, 21: SVIGM5218L (SVIGNJM4558S)
  - IC19: SVIGTC40H393
  - IC20: SVIGTC40H004
- DIODES
  - D1, 2: MA165TA5VT
  - D3: SVDGSM1A02LF
- COILS
  - L1, 2: ELQS180KB

ORGAN CIRCUIT DIAGRAM (ORG)

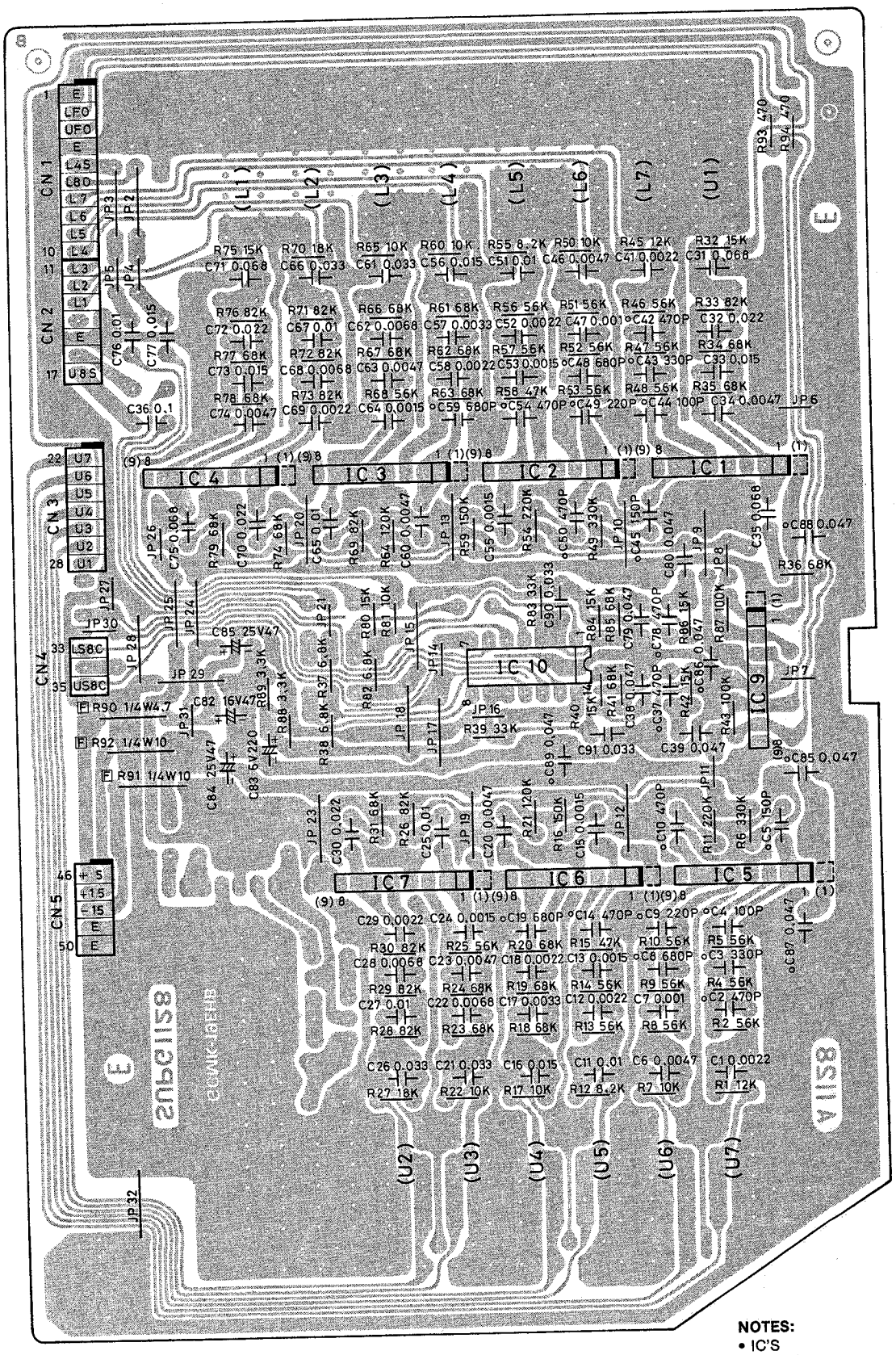


NOTES:

- IC'S
  - IC1~7, 9: SVIGM5218L (SVIGNJM4558S)
  - IC10: SVIGUPD4066C

ORGAN CIRCUIT BOARD (ORG)

SXPGA11283

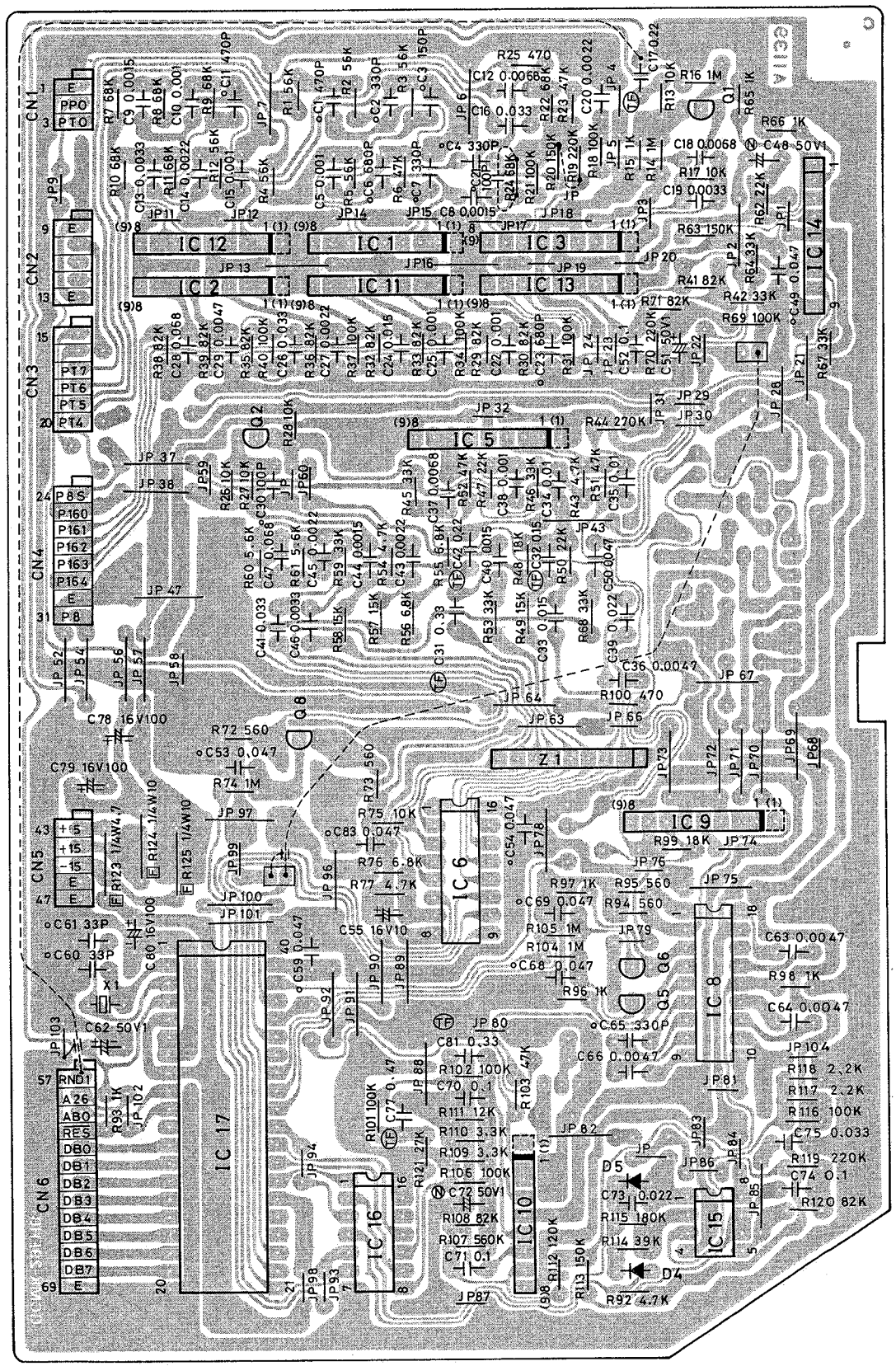


NOTES:

- IC'S
  IC1~7, 9: SVIGM5218L (SVIGNJM4558S)
  IC10: SVIGUPD4066C

ORCHESTRAL & PERCUSSIVE PRESETS CIRCUIT BOARD (OP)

SXPGA11393



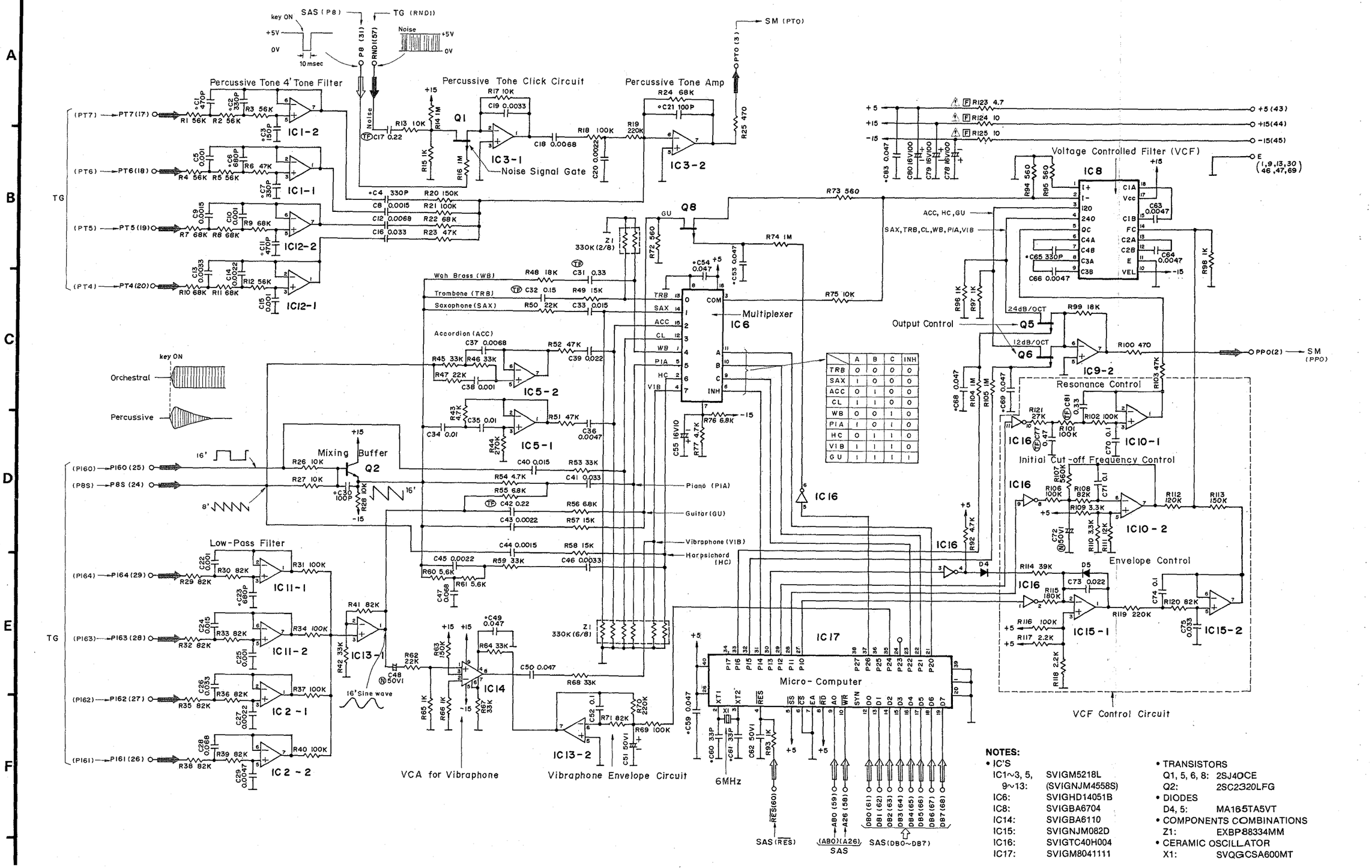
NOTES:

- IC'S

IC1~3, 5, 9~13:	SVIGM5218L (SVIGNJM4558S)	IC14:	SVIGBA6110
IC6:	SVIGHD14051B	IC15:	SVIGNJM082D
IC8:	SVIGBA6704	IC16:	SVIGTC40H004
		IC17:	SVIGM8041111

- TRANSISTORS
  Q1, 5, 6, 8: 2SJ40CE
  Q2: 2SC2320LFG
- DIODES
  D4, 5: MA165TA5VT
- COMPONENTS COMBINATIONS
  Z1: EXBP88334MM
- CERAMIC OSCILLATOR
  X1: SVQGCSA600MT

ORCHESTRAL & PERCUSSIVE PRESETS CIRCUIT DIAGRAM (OP)

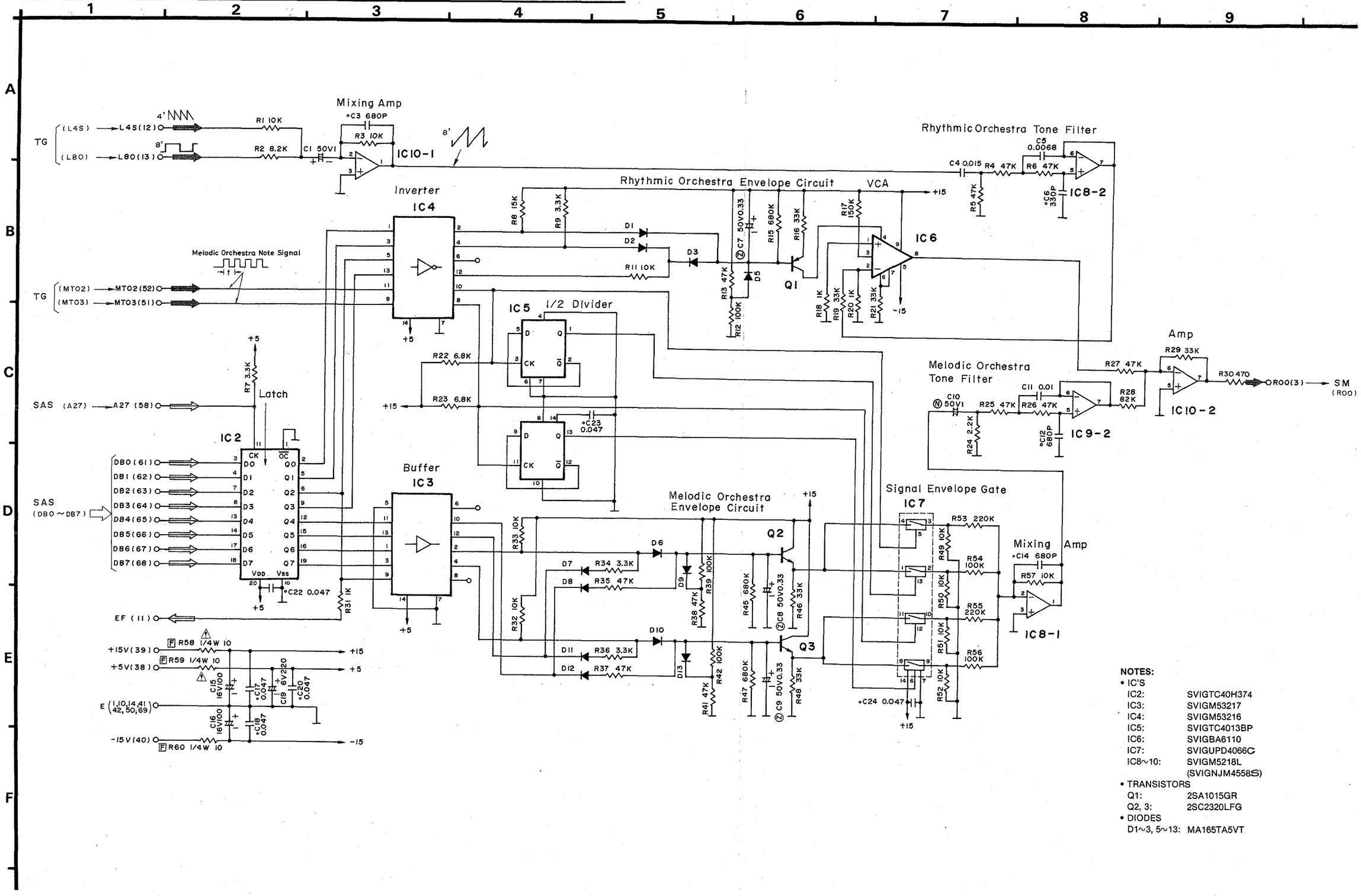


	A	B	C	INH
TRB	0	0	0	0
SAX	1	0	0	0
ACC	0	1	0	0
CL	1	1	0	0
WB	0	0	1	0
PIA	1	0	1	0
HC	0	1	1	0
VIB	1	1	1	0
GU	1	1	1	1

NOTES:

- IC'S
  - IC1~3, 5, 9~13: SVIGM5218L (SVIGNJM4558S)
  - IC6: SVIGHD14051B
  - IC8: SVIGBA6704
  - IC14: SVIGBA6110
  - IC15: SVIGNJM082D
  - IC16: SVIGTC40H004
  - IC17: SVIGM8041111
- TRANSISTORS
  - Q1, 5, 6, 8: 2SJ40CE
  - Q2: 2SC2320LFG
- DIODES
  - D4, 5: MA165TA5VT
- COMPONENTS COMBINATIONS
  - Z1: EXBP88334MM
- CERAMIC OSCILLATOR
  - X1: SVQGCSA600MT

ACCOMPANIMENT CIRCUIT DIAGRAM (ACC)

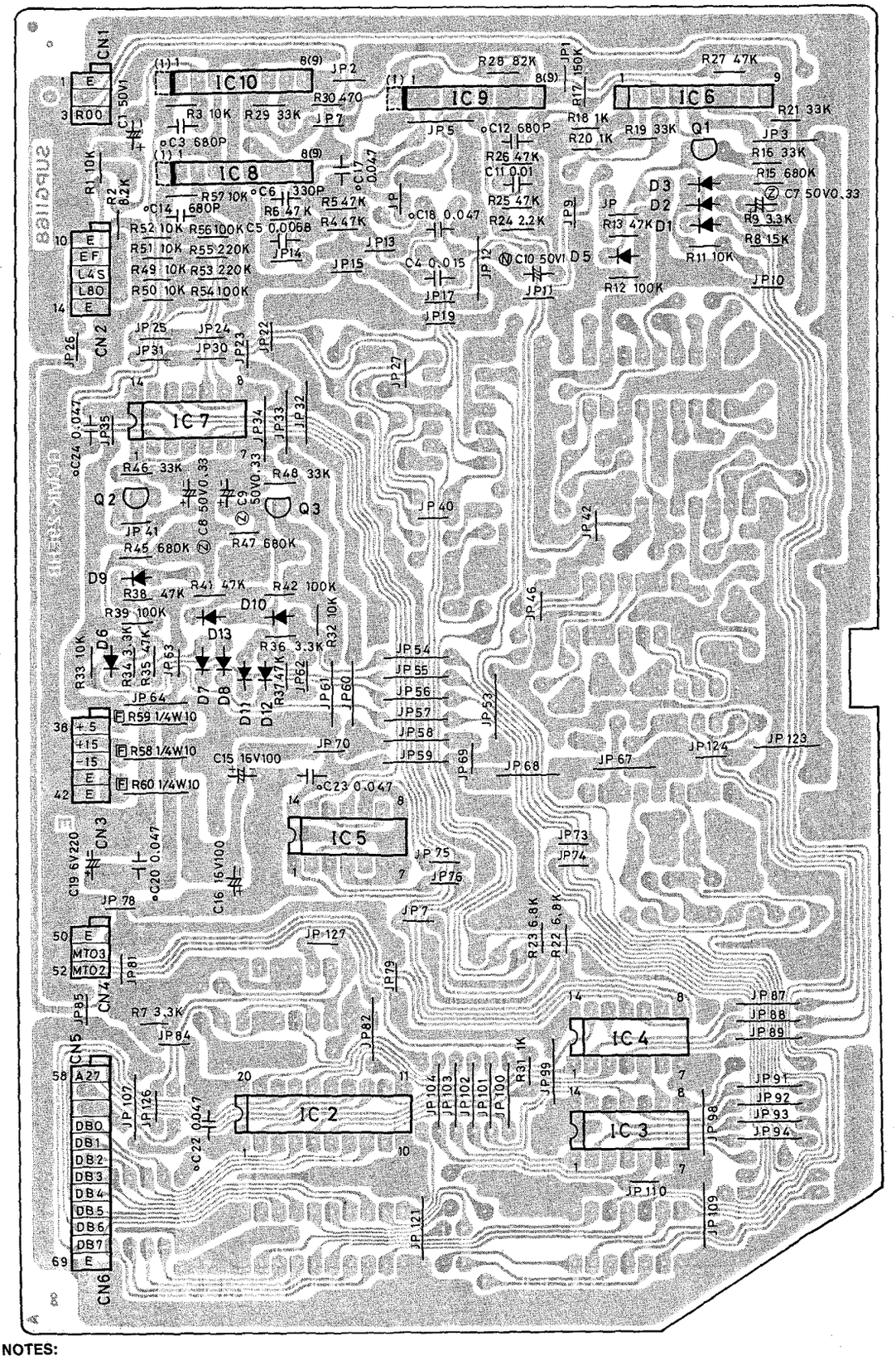


NOTES:

- IC'S
  - IC2: SVIGTC40H374
  - IC3: SVIGM53217
  - IC4: SVIGM53216
  - IC5: SVIGTC4013BP
  - IC6: SVIGBA6110
  - IC7: SVIGUPD4066C
  - IC8~10: SVIGM5218L (SVIGNJM4558S)
- TRANSISTORS
  - Q1: 2SA1015GR
  - Q2, 3: 2SC2320LFG
- DIODES
  - D1~3, 5~13: MA165TA5VT

ACCOMPANIMENT CIRCUIT BOARD (ACC)

SXPG11682



NOTES:

- IC'S

IC2:	SVIGTC40H374	IC6:	SVIGBA6110		
IC3:	SVIGM53217	IC7:	SVIGUPD4066C		
IC4:	SVIGM53216	IC8~10:	SVIGM5218L (SVIGNJM4558S)		
IC5:	SVIGTC4013BP				

- TRANSISTORS

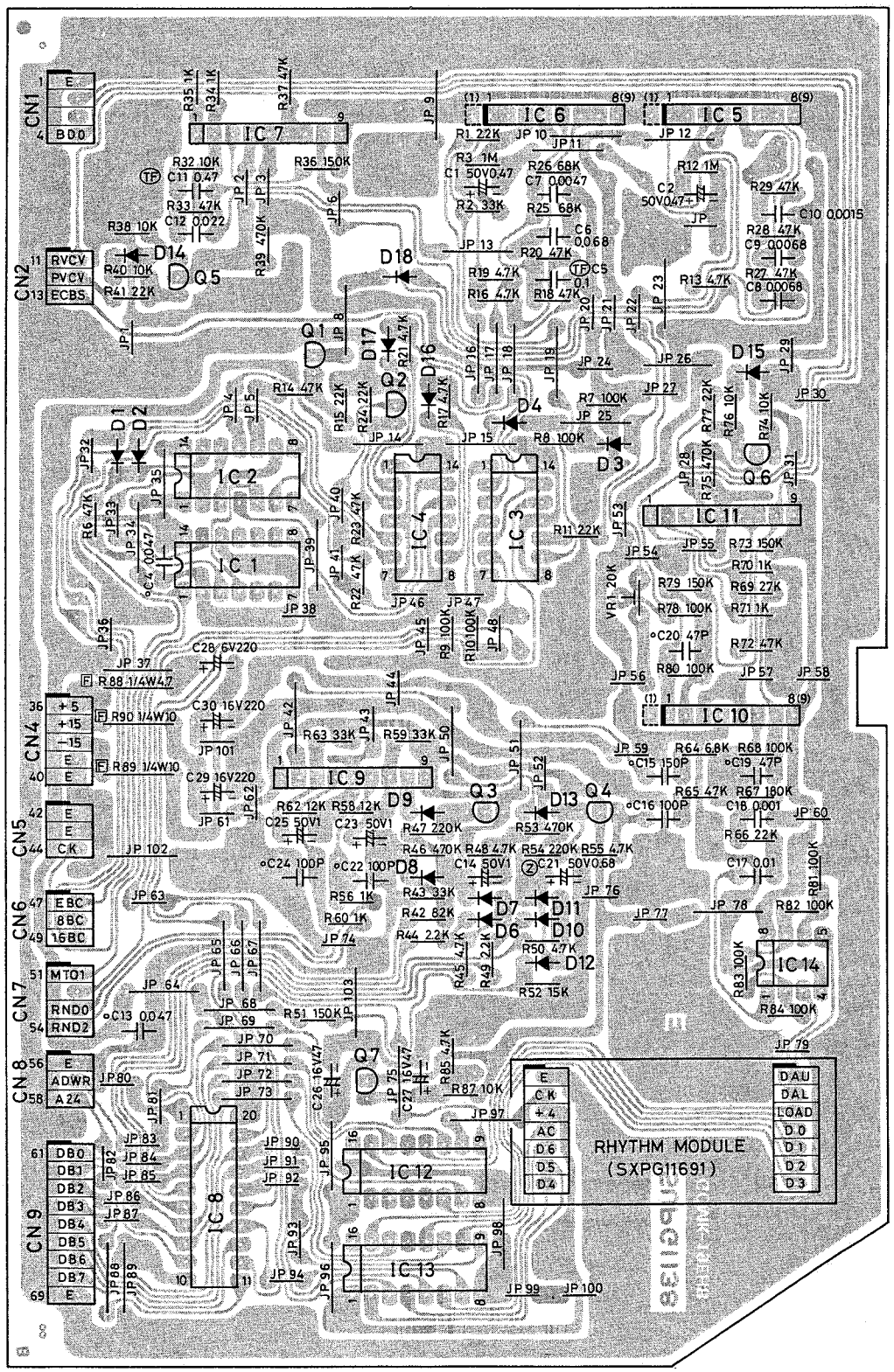
Q1:	2SA1015GR
Q2, 3:	2SC2320LFG

- DIODES

D1~3, 5~13:	MA165TA5VT

BASS & DRUM PERCUSSION CIRCUIT BOARD (BD)

SXPG11381



NOTES:

- IC'S

IC1:	SVIGTC40H393
IC2:	SVIGMSM4011
IC3, 4:	SVIGUPD4066C
IC5, 6, 10:	SVIGM5218L (SVIGNJM4558S)
IC7, 11:	SVIGBA6110
IC8:	SVIGTC40H374
IC9:	AN6913
IC12, 13:	SVIGTC4050BP
IC14:	SVIGNJM082D

- TRANSISTORS

Q1~4, 7:	2SC2320LFG
Q5, 6:	2SA1015GR

- DIODES

D1~4, 6~18:	MA165TA5VT

BASS & DRUM PERCUSSION CIRCUIT DIAGRAM (BD)

1 2 3 4 5 6 7 8 9

A B C D E F

NOTES:

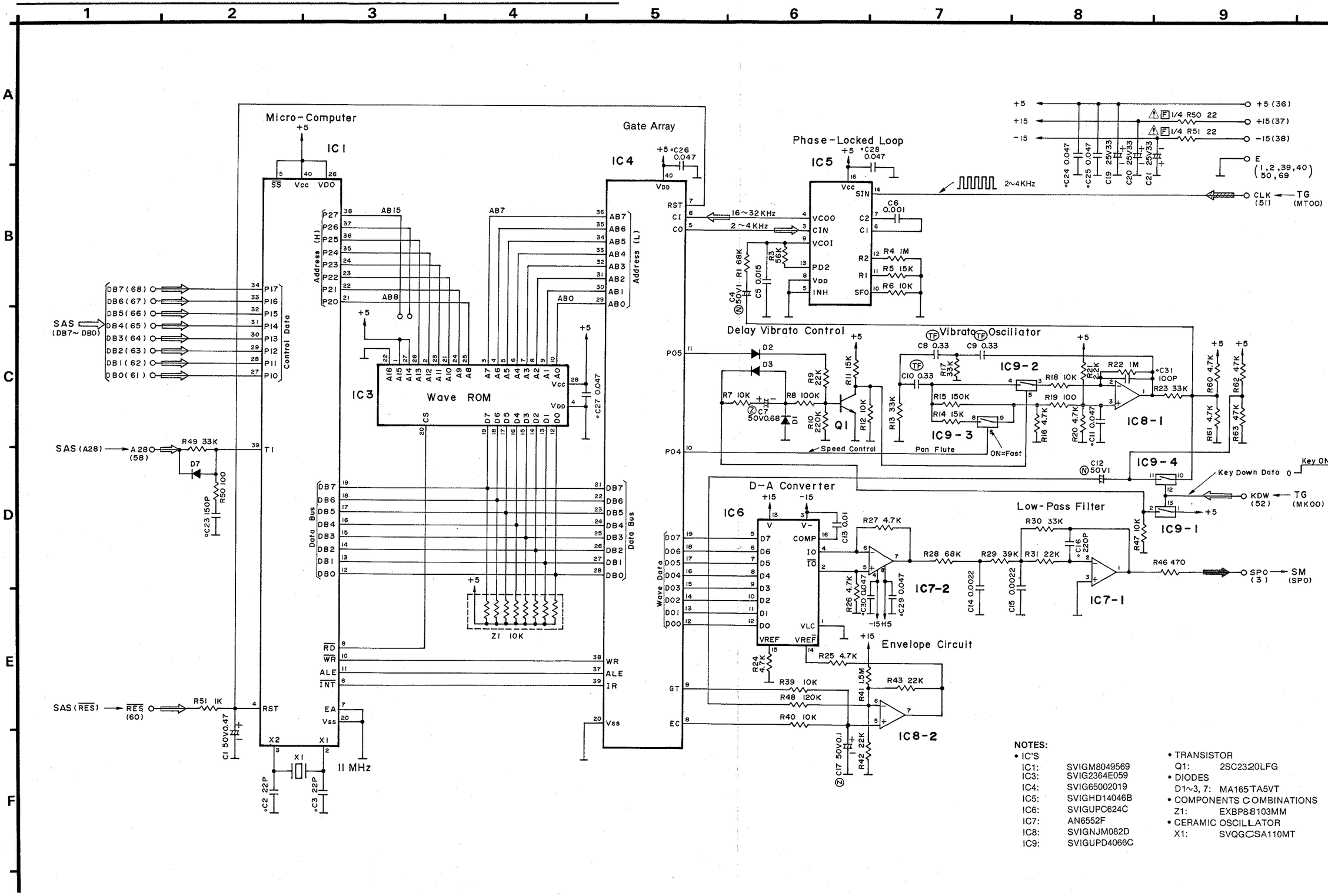
- IC'S
  - IC1: SVIGTC40H393
  - IC2: SVIGMSM4011
  - IC3, 4: SVIGUPD4066C
  - IC5, 6, 10: SVIGM5218L (SVIGNJM4558S)
  - IC7, 11: SVIGBA6110
  - IC8: SVIGTC40H374
  - IC9: AN6913
  - IC12, 13: SVIGTC4050BP
  - IC14: SVIGNJM082D
- TRANSISTORS
  - Q1~4, 7: 2SC2320LFG
  - Q5, 6: 2SA1015GR
- DIODES
  - D1~4, 6~18: MA165TA5VT

BASS CIRCUIT

DRUM PERCUSSION CIRCUIT

Key ON 5V
Envelope Circuit (Bass 8', 16') IC6-1
IC3
Envelope Gate & Level Control
IC4
Bass 8', 16' Tone Filter
IC6-2
Divider
IC1-1
IC2
Sustain Control
SAS (ECBS) → ECBS (13)
TG (MTO1) → MTO1 (51)
Bass Note Signal
4'
8'
16'
Signal Gate
D1
D2
Bass 16'
Bass 8'
Electric Bass
(16BC) → 16BC (49)
(8BC) → 8BC (48)
(EBC) → EBC (47)
SM
Q1
Q2
Key ON
10msec
Electric Bass Tone Filter
IC5-2
IC5-1
Electric Bass Key Down
Bass 16',8' Key Down
Electric Bass Envelope Circuit
VCA
IC7
Bass Volume Control
PVCV (12) → SAS (PVCV)
Q5
D14
Hi-Hat Envelope Circuit
Noise Signal Gate
Latch
IC8
Hi-Hat Open
Hi-Hat Rhythm Pattern
Hi-Hat Accent
Cymbals Rhythm Pattern
Cymbals Envelope Circuit
Cymbals Accent
Q3
Q4
Noise & Drum Mixing Amp
IC10-2
IC11
IC10-1
Rhythm Volume Control
RVCV (11) → SAS (RVCV)
Q6
D15
Bass & Rhythm Mixing Amp
BDO (4) → SM (BDO)
SAS (DB0~DB7)
SAS (A24) → A24 (58)
Noise Generator (Hi-Hat)
Noise Generator (Cymbals)
IC9-1
IC9-2
Drum Percussion
Drum Percussion Amp
IC14-2
IC14-1
Buffer
IC12 IC13
62.5 KHz
All Clear
MODULE (SXPG11691)
RHYTHM
TG (RNDO) → RNDO (53)
TG (RND2) → RND2 (54)
(CK) → CK (44)
Clock 1MHz
Clock Divider
IC1-2
62.5KHz
+4V Regulator
Q7
SAS (ADWR) → ADWR (57)
E (1,39,40,42,43,56,69)
F R86 4.7 → +5 (36)
F R89 10 → -15 (38)
F R90 10 → +15 (37)

SOLO SYNTHE PRESETS CIRCUIT DIAGRAM (SPS)

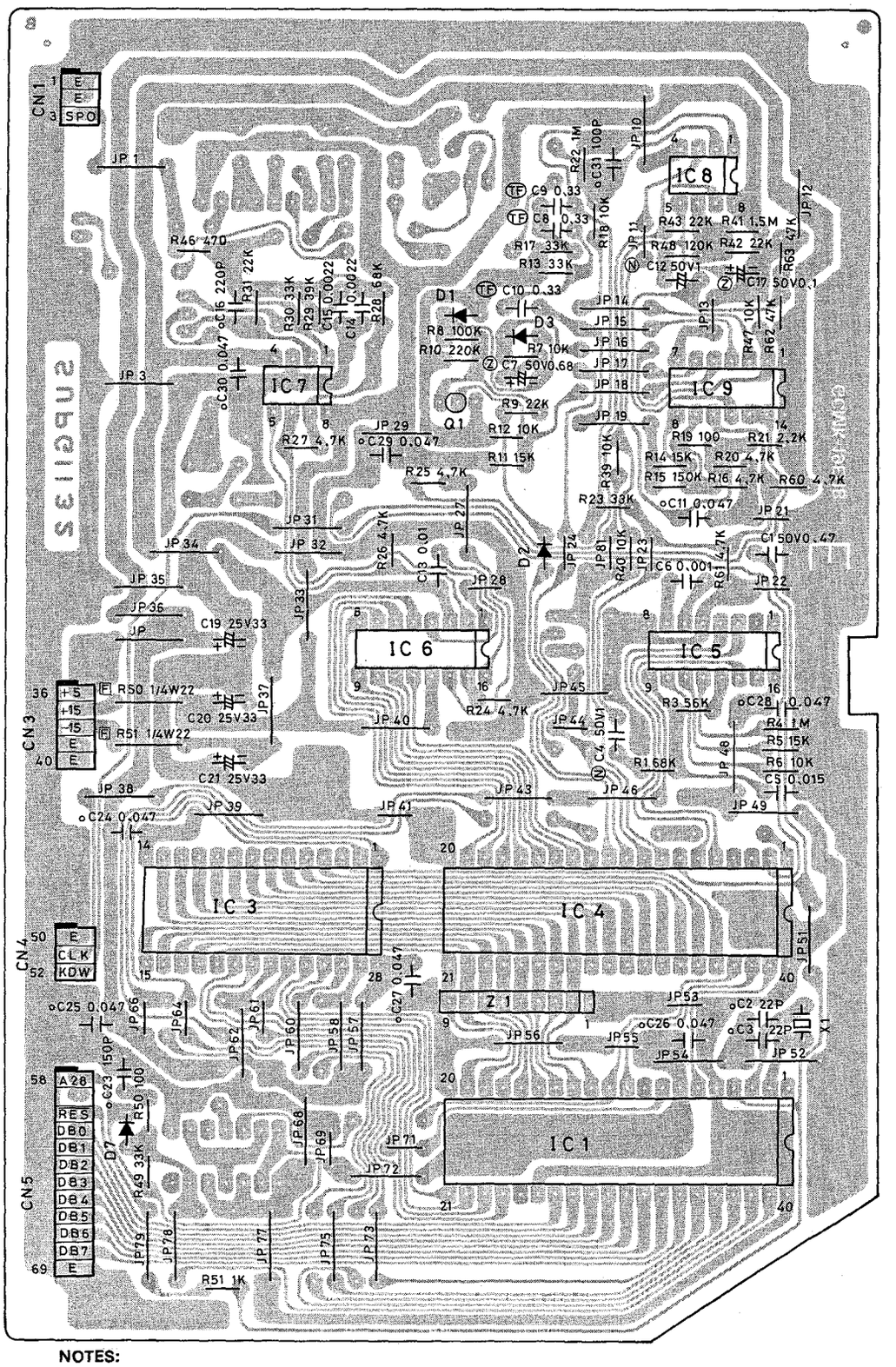


NOTES:

- IC'S
  - IC1: SVIGM8049569
  - IC3: SVIG2364E059
  - IC4: SVIG65002019
  - IC5: SVIGHD14046B
  - IC6: SVIGUPC624C
  - IC7: AN6552F
  - IC8: SVIGNJM082D
  - IC9: SVIGUPD4066C
- TRANSISTOR
  - Q1: 2SC2320LFG
- DIODES
  - D1~3, 7: MA165TA5VT
- COMPONENTS COMBINATIONS
  - Z1: EXBP88103MM
- CERAMIC OSCILLATOR
  - X1: SVQGCSA110MT

SOLO SYNTHE PRESETS CIRCUIT BOARD (SPS)

SXPG11324



NOTES:

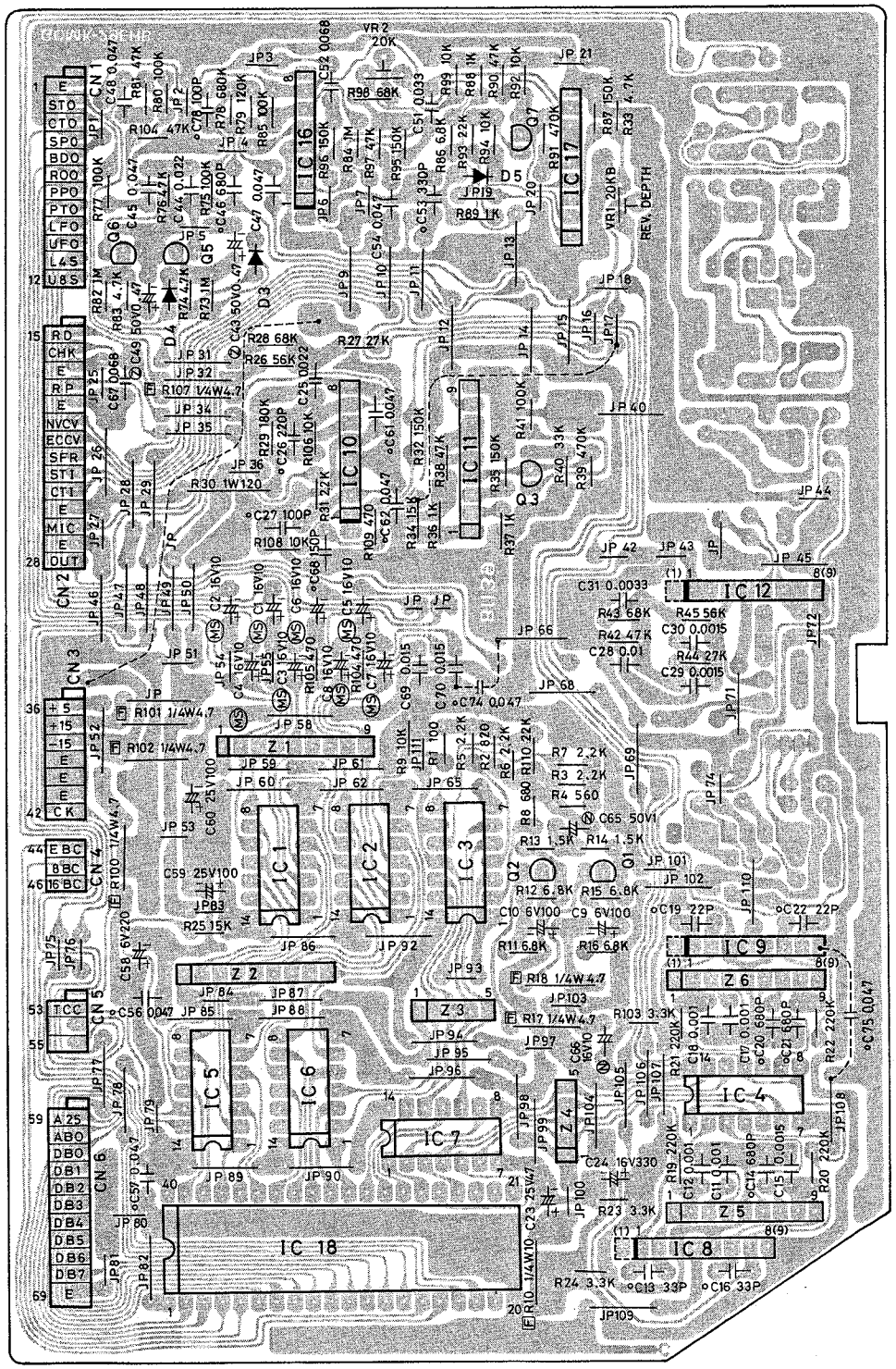
- IC'S

IC1:	SVIGM8049569	IC6:	SVIGUPC624C
IC3:	SVIG2364E059	IC7:	AN6552F
IC4:	SVIG65002019	IC8:	SVIGNJM082D
IC5:	SVIGHD14046B	IC9:	SVIGUPD4066C

- TRANSISTOR
  Q1: 2SC2320LFG
- DIODES
  D1~3, 7: MA165TA5VT
- COMPONENTS COMBINATIONS
  Z1: EXBP88103MM
- CERAMIC OSCILLATOR
  X1: SVQGCSA110MT

SELECTOR & MIXING CIRCUIT BOARD (SM)

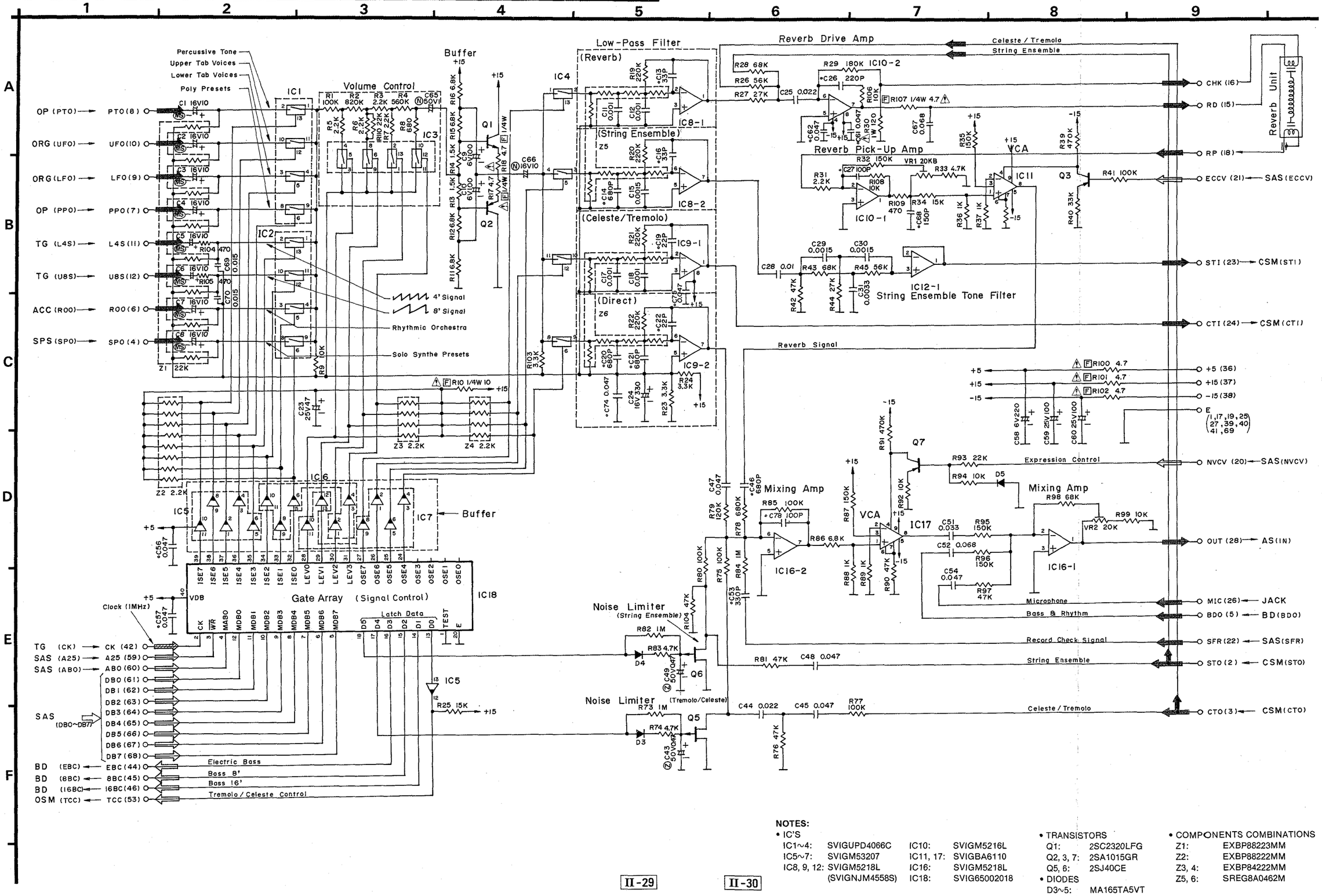
SXPGB11393



NOTES:

- IC'S
  - IC1~4: SVIGUPD4066C
  - IC5~7: SVIGM53207
  - IC8, 9, 12: SVIGM5218L (SVIGNJM4558S)
  - IC10: SVIGM5216L
  - IC11, 17: SVIGBA6110
  - IC16: SVIGM5218L
  - IC18: SVIG65002018
- TRANSISTORS
  - Q1: 2SC2320LFG
  - Q2, 3, 7: 2SA1015GR
  - Q5, 6: 2SJ40CE
- DIODES
  - D3~5: MA165TA5VT
- COMPONENTS COMBINATIONS
  - Z1: EXBP88223MM
  - Z2: EXBP88222MM
  - Z3, 4: EXBP84222MM
  - Z5, 6: SREG8A0462M

SELECTOR & MIXING CIRCUIT DIAGRAM (SM)



NOTES:

- IC'S

IC1~4:	SVIGUPD4066C	IC10:	SVIGM5216L
IC5~7:	SVIGM53207	IC11, 17:	SVIGBA6110
IC8, 9, 12:	SVIGM5218L (SVIGNJM4558S)	IC16:	SVIGM5218L
		IC18:	SVIG65002018

- TRANSISTORS

Q1:	2SC2320LFG
Q2, 3, 7:	2SA1015GR
Q5, 6:	2SJ40CE

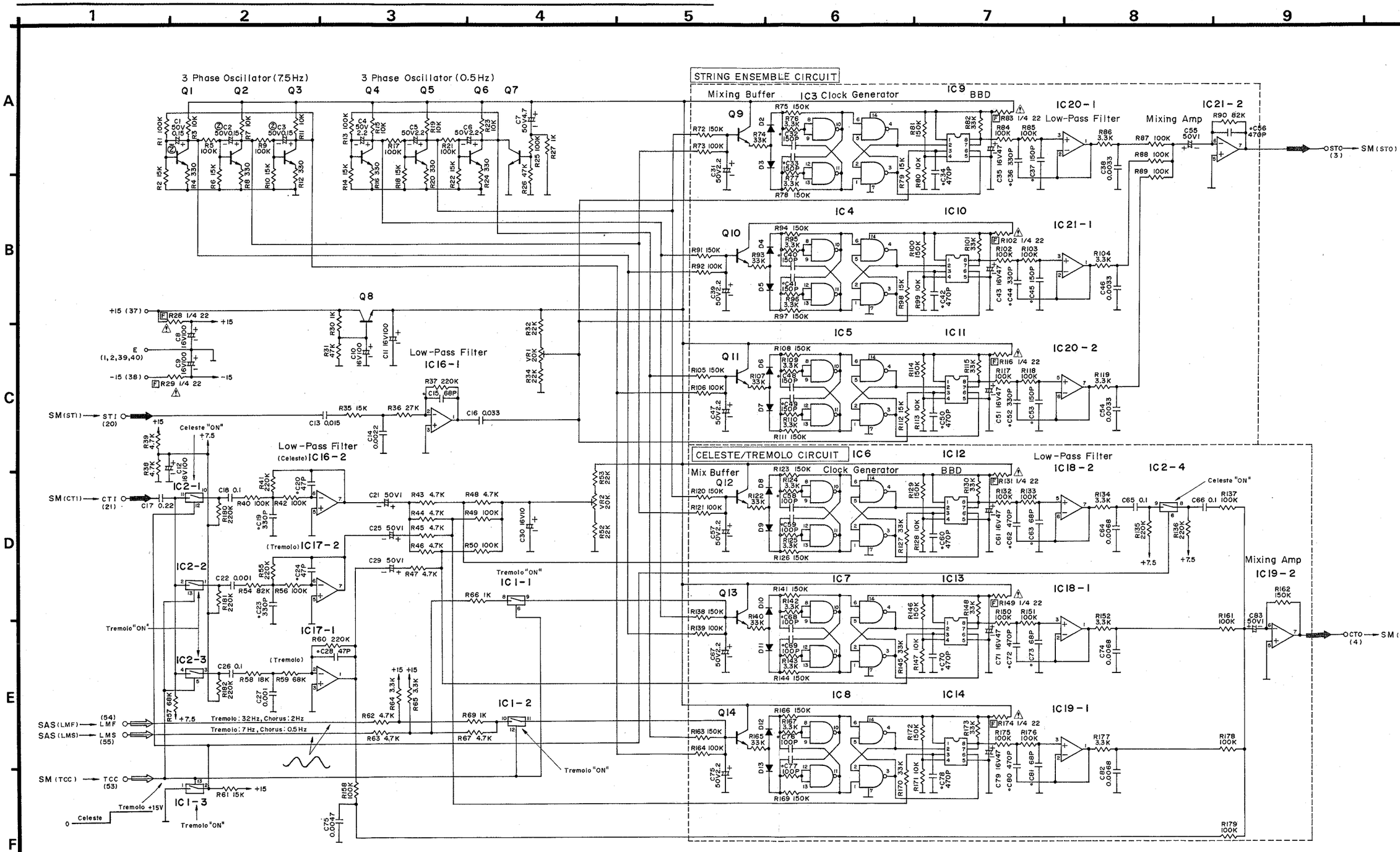
- DIODES

D3~5:	MA165TA5VT

- COMPONENTS COMBINATIONS

Z1:	EXBP88223MM
Z2:	EXBP88222MM
Z3, 4:	EXBP84222MM
Z5, 6:	SREG8A0462M

CELESTE & STRING ENSEMBLE CIRCUIT DIAGRAM(CSM)

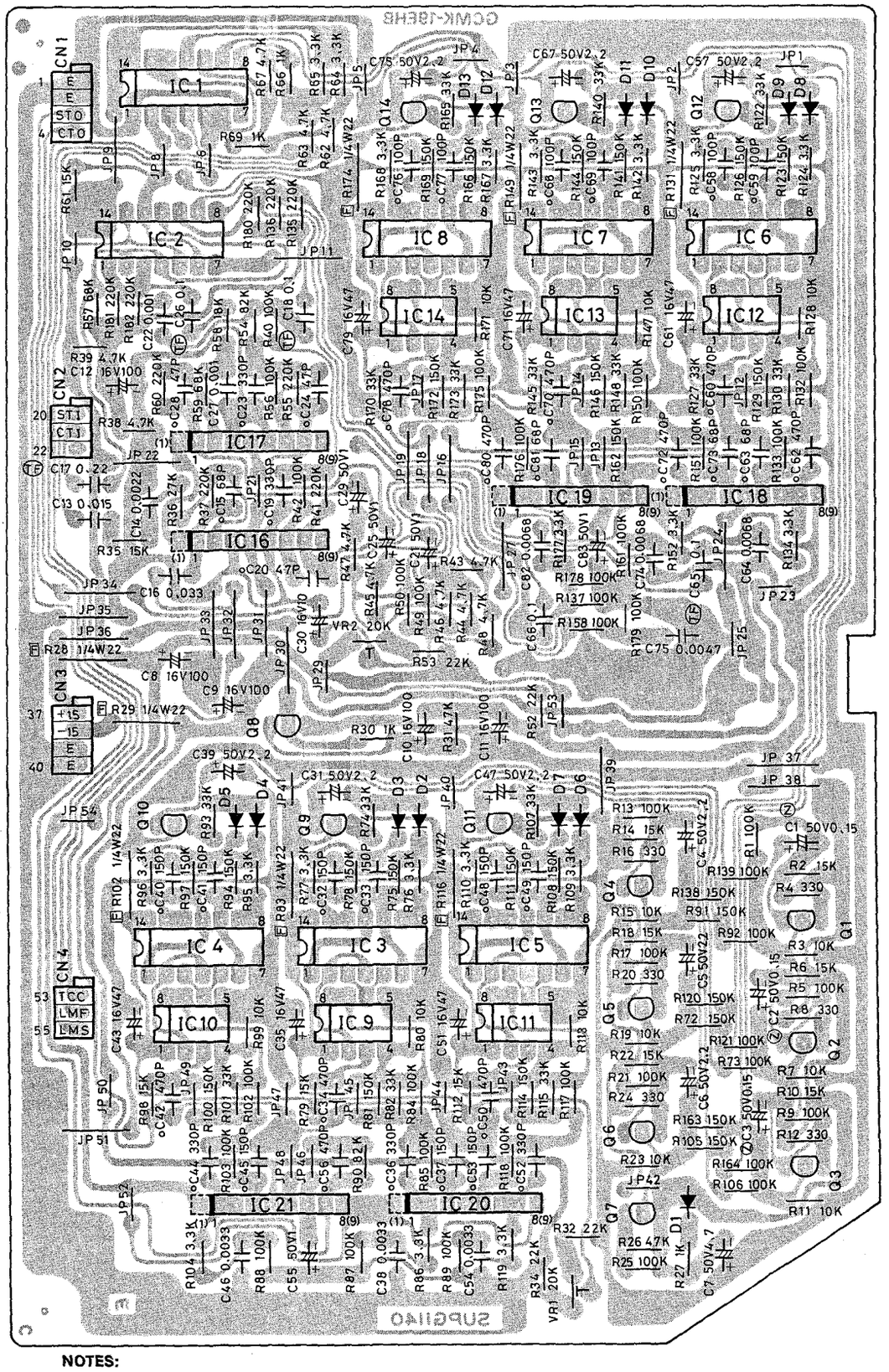


NOTES:

- IC'S
  - IC1, 2: SVIGUPD4066C
  - IC3~8: SVIGMSM4011
  - IC9~14: MN3006
  - IC16~21: SVIGM5218L (SVIGNJM4558S)
- TRANSISTORS
  - Q1~14: 2SC2320LFG
- DIODES
  - D1~13: MA165TA5VT

CELESTE & STRING ENSEMBLE CIRCUIT BOARD (CSM)

SXPG11402



NOTES:

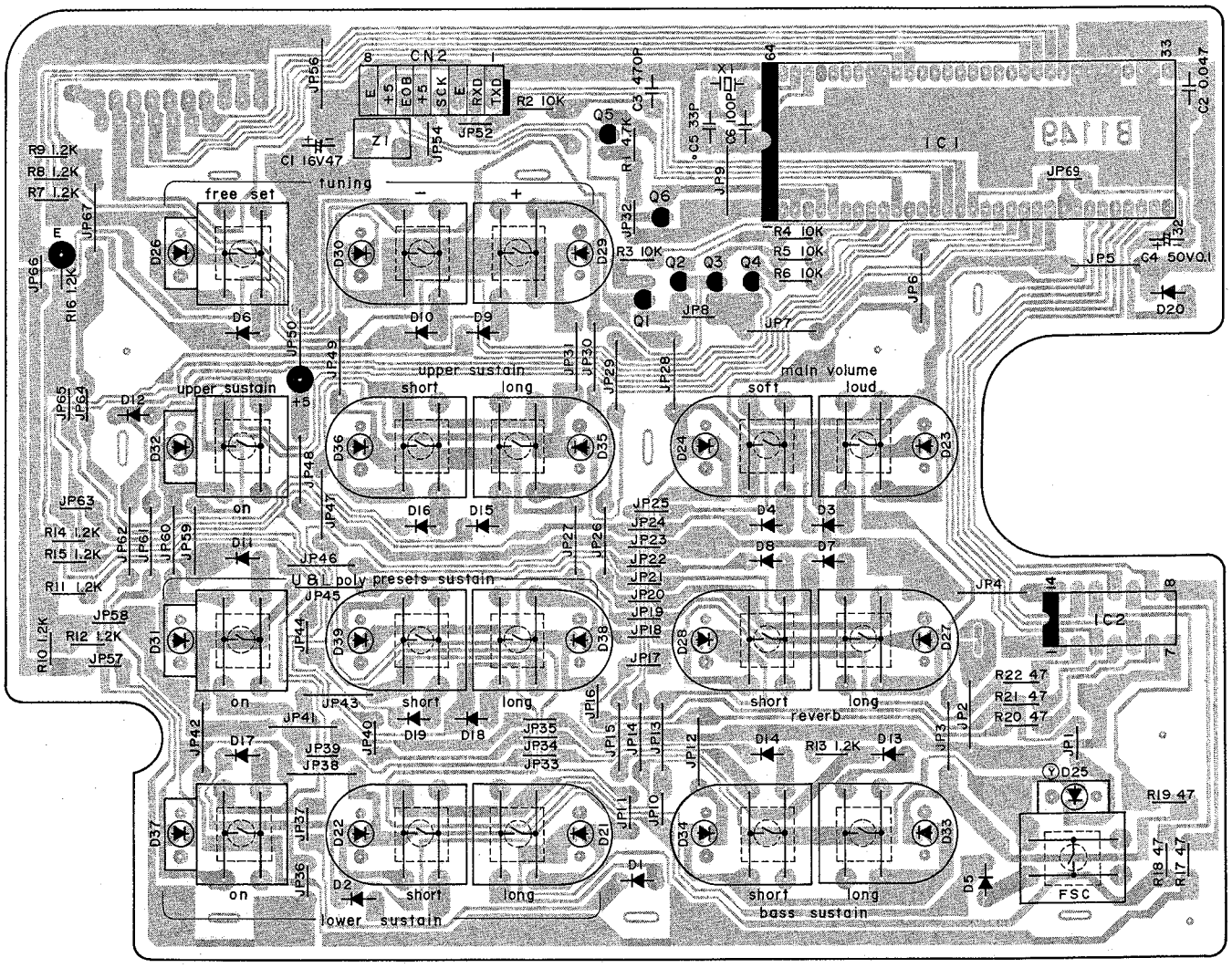
- IC'S

IC1, 2:	SVIGUPD4066C	IC9~14:	MN3006
IC3~8:	SVIGMSM4011	IC16~21:	SVIGM5218L (SVIGNJM4558S)

- TRANSISTORS
  - Q1~14: 2SC2320LFG
- DIODES
  - D1~13: MA165TA5VT

CONTROL PANEL SWITCH RIGHT CIRCUIT BOARD (CPSR)

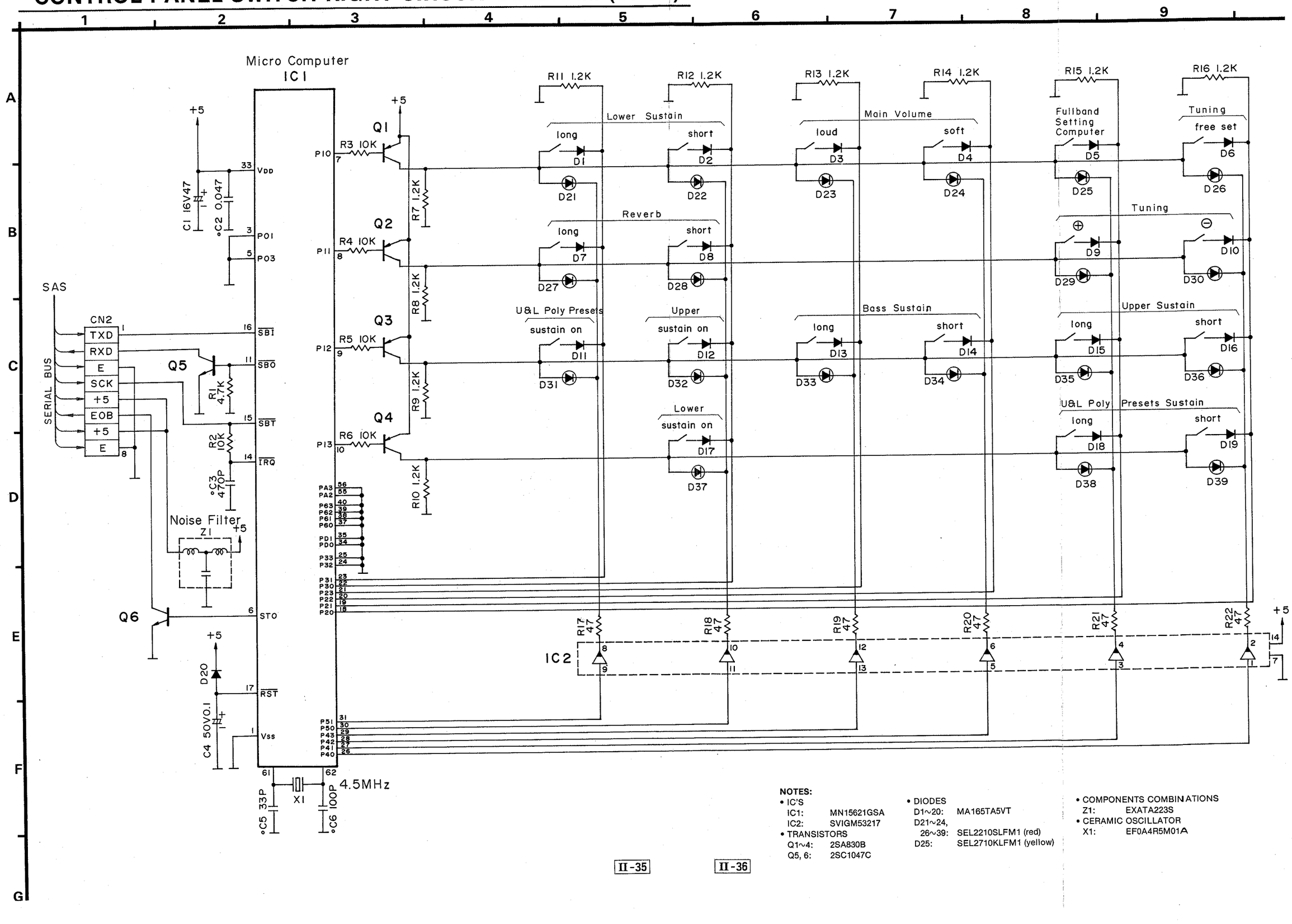
SXPGB11491



NOTES:

- IC'S
  - IC1: MN15621GSA
  - IC2: SVIGM53217
- TRANSISTORS
  - Q1~4: 2SA830B
  - Q5, 6: 2SC1047C
- DIODES
  - D1~20: MA165TA5VT
  - D21~24, 26~39: SEL2210SLFM1 (red)
  - D25: SEL2710KLFM1 (yellow)
- COMPONENTS COMBINATIONS
  - Z1: EXATA223S
- CERAMIC OSCILLATOR
  - X1: EF0A4R5M01A

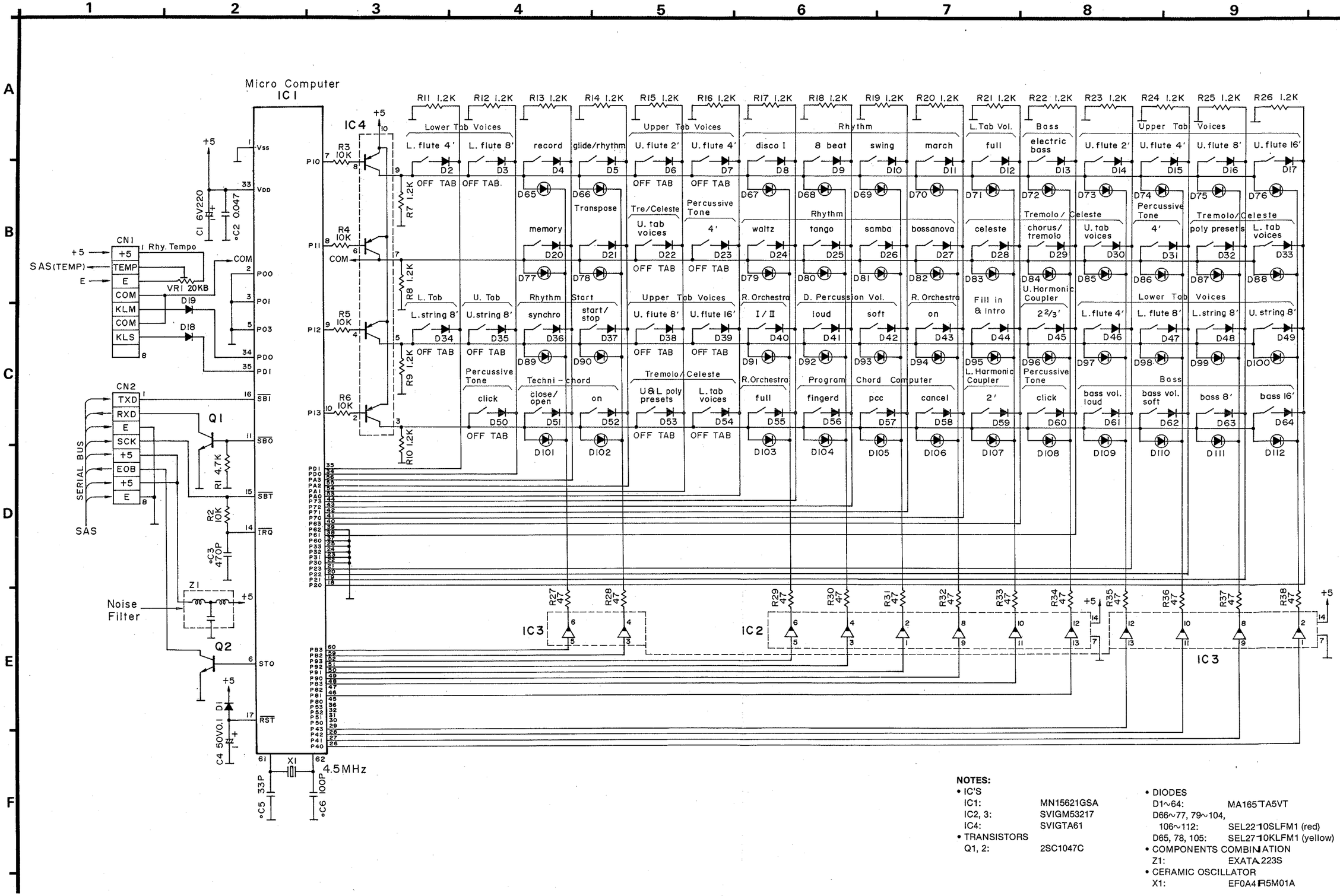
CONTROL PANEL SWITCH RIGHT CIRCUIT DIAGRAM (CPSR)



NOTES:

- IC'S
  - IC1: MN15621GSA
  - IC2: SVIGM53217
- TRANSISTORS
  - Q1~4: 2SA830B
  - Q5, 6: 2SC1047C
- DIODES
  - D1~20: MA165TA5VT
  - D21~24, 26~39: SEL2210SLFM1 (red)
  - D25: SEL2710KLFM1 (yellow)
- COMPONENTS COMBINATIONS
  - Z1: EXATA223S
- CERAMIC OSCILLATOR
  - X1: EF0A4R5M01A

CONTROL PANEL SWITCH LEFT CIRCUIT DIAGRAM (CPSL)

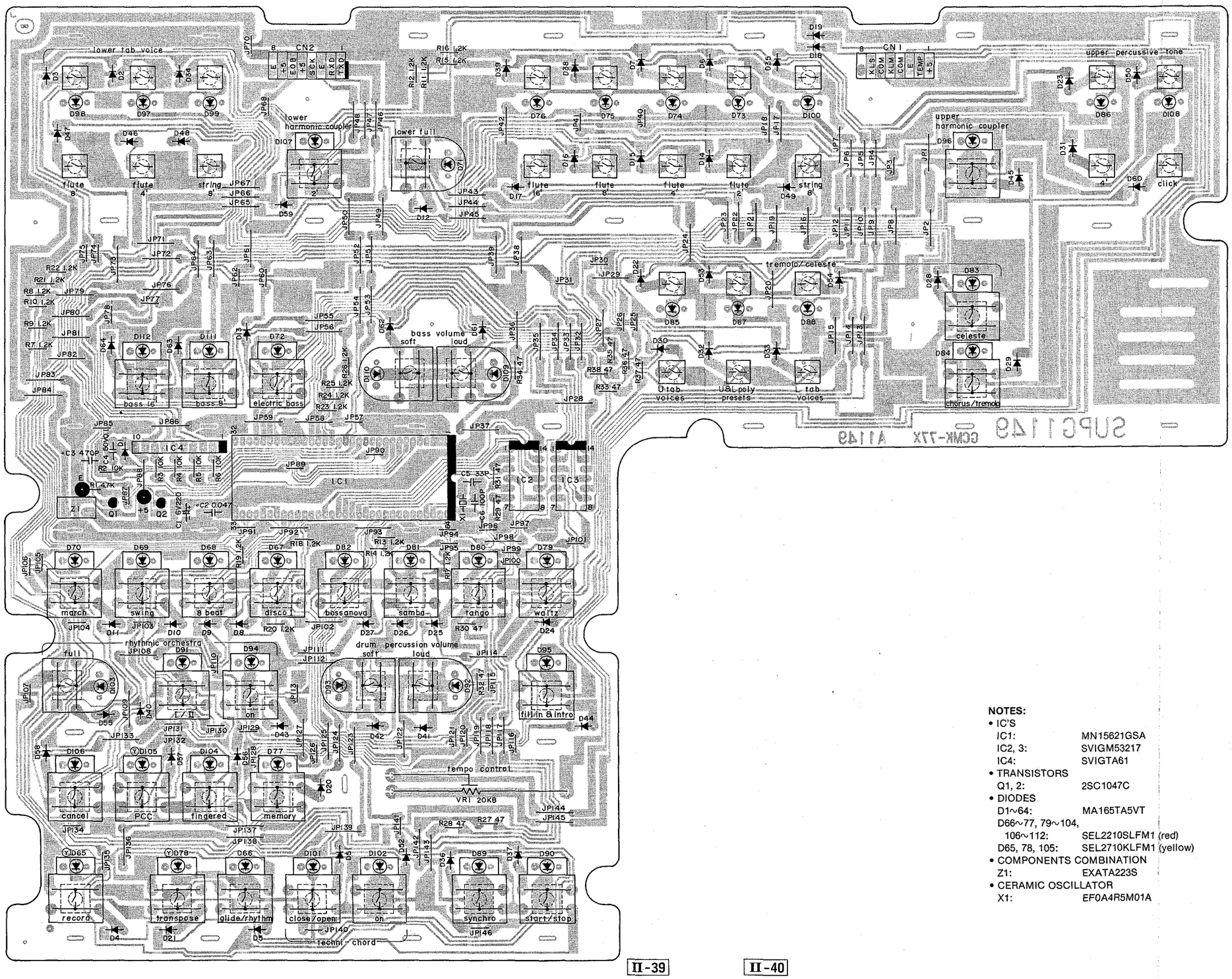


NOTES:

- IC'S
  - IC1: MN15621GSA
  - IC2, 3: SVIGM53217
  - IC4: SVIGTA61
- TRANSISTORS
  - Q1, 2: 2SC1047C
- DIODES
  - D1~64: MA165-TA5VT
  - D66~77, 79~104, 106~112: SEL22-10SLFM1 (red)
  - D65, 78, 105: SEL27-10KLFM1 (yellow)
- COMPONENTS COMBINATION
  - Z1: EXATA-223S
- CERAMIC OSCILLATOR
  - X1: EF0A4-R5M01A

CONTROL PANEL SWITCH LEFT CIRCUIT BOARD (CPSL)

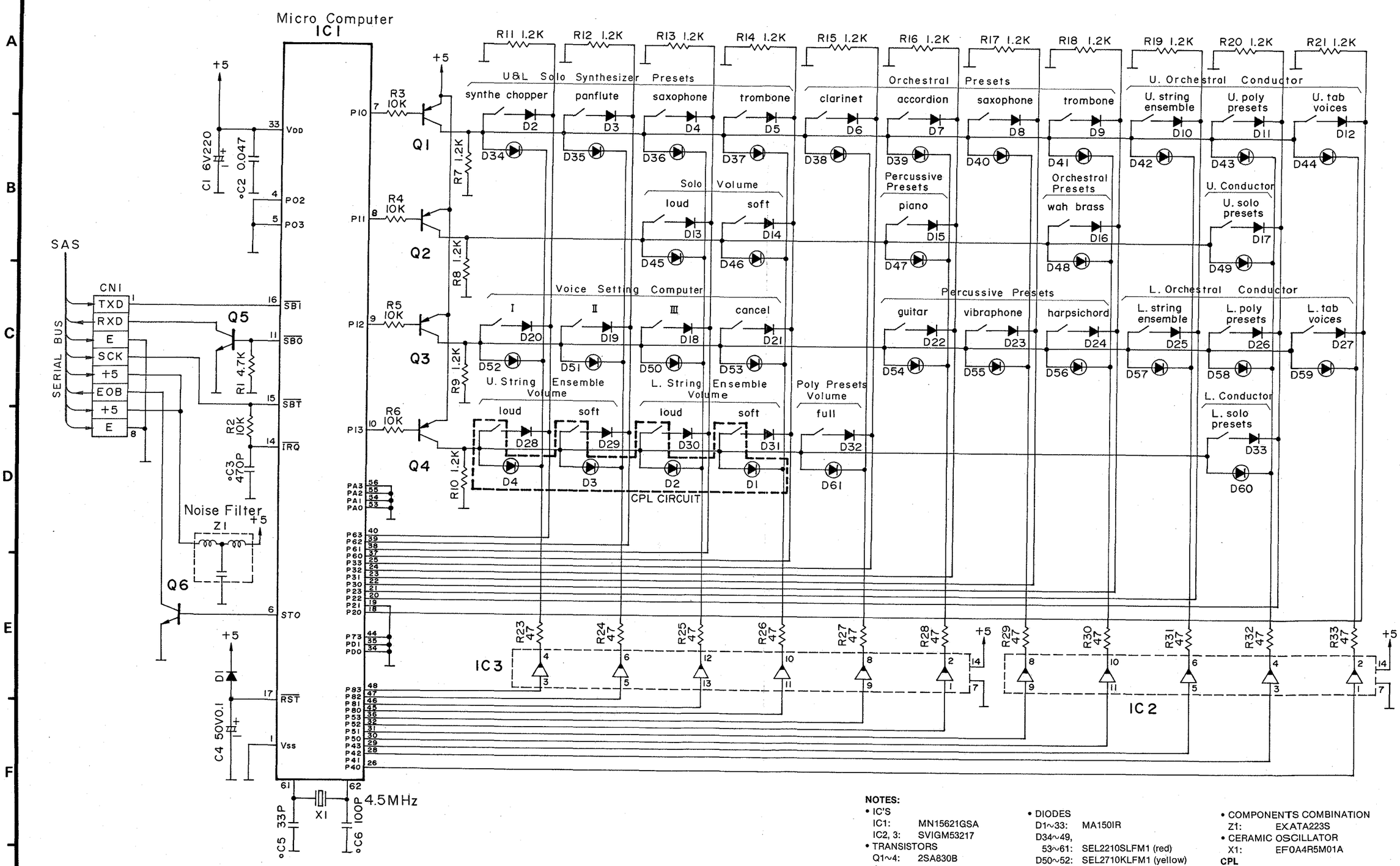
SXPGA11491



NOTES:

- IC'S
  - IC1: MN15621GSA
  - IC2, 3: SVIGM53217
  - IC4: SVIGTA61
- TRANSISTORS
  - Q1, 2: 2SC1047C
- DIODES
  - D1~64: MA165TA5VT
  - D66~77, 79~104, 106~112: SEL2210SLFM1 (red)
  - D65, 78, 105: SEL2710KLFM1 (yellow)
- COMPONENTS COMBINATION
  - Z1: EXATA223S
- CERAMIC OSCILLATOR
  - X1: EF0A4R5M01A

CONTROL PANEL RIGHT & LEFT CIRCUIT DIAGRAM (CPR, CPL)



NOTES:

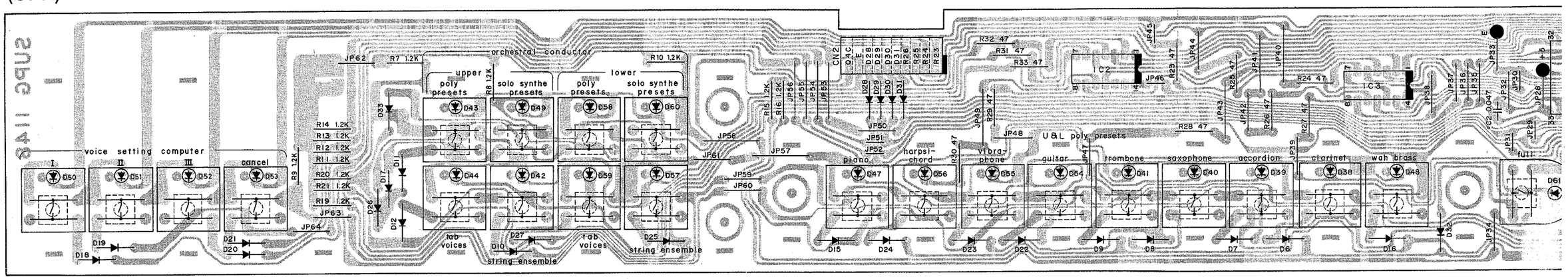
- IC'S
  - IC1: MN15621GSA
  - IC2, 3: SVIGM53217
- TRANSISTORS
  - Q1~4: 2SA830B
  - Q5, 6: 2SC1047C
- DIODES
  - D1~33: MA150IR
  - D34~49, 53~61: SEL2210SLFM1 (red)
  - D50~52: SEL2710KLFM1 (yellow)
- COMPONENTS COMBINATION
  - Z1: EXATA223S
- CERAMIC OSCILLATOR
  - X1: EF0A4R5M01A

CPL

- DIODES
  - D1~4: SEL2210SLFM1 (red)

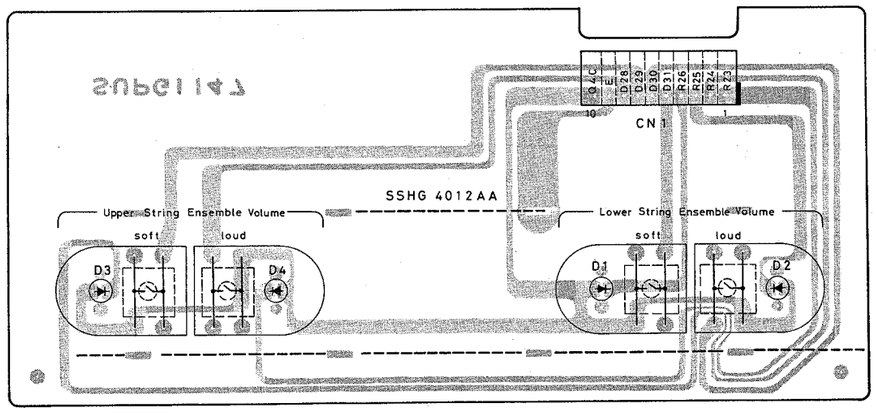
CONTROL PANEL RIGHT & LEFT CIRCUIT BOARD (CPR, CPL)

(CPR)



(CPL)

SXPG11471



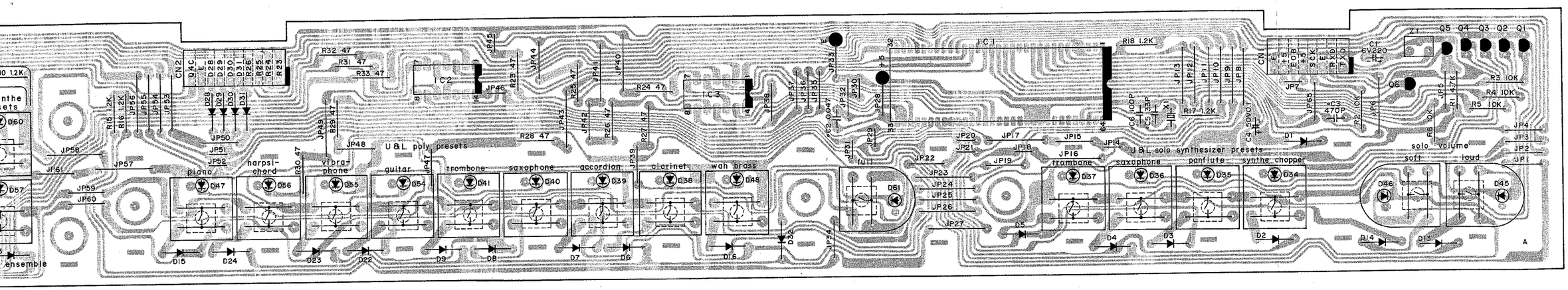
NOTES:

- IC'S
  - IC1: MN15621GSA
  - IC2, 3: SVIGM53217
- TRANSISTORS
  - Q1~4: 2SA830B
  - Q5, 6: 2SC1047C
- DIODES
  - D1~33: MA150IR
  - D34~49, 53~61: SEL2210SLFM1 (red)
  - D50~52: SEL2710KLFM1 (yellow)
- COMPONENTS COMBINATION
  - Z1: EXATA223S
- CERAMIC OSCILLATOR
  - X1: EF0A4R5M01A

CPL

- DIODES
  - D1~4: SEL2210SLFM1 (red)

SXPG11481



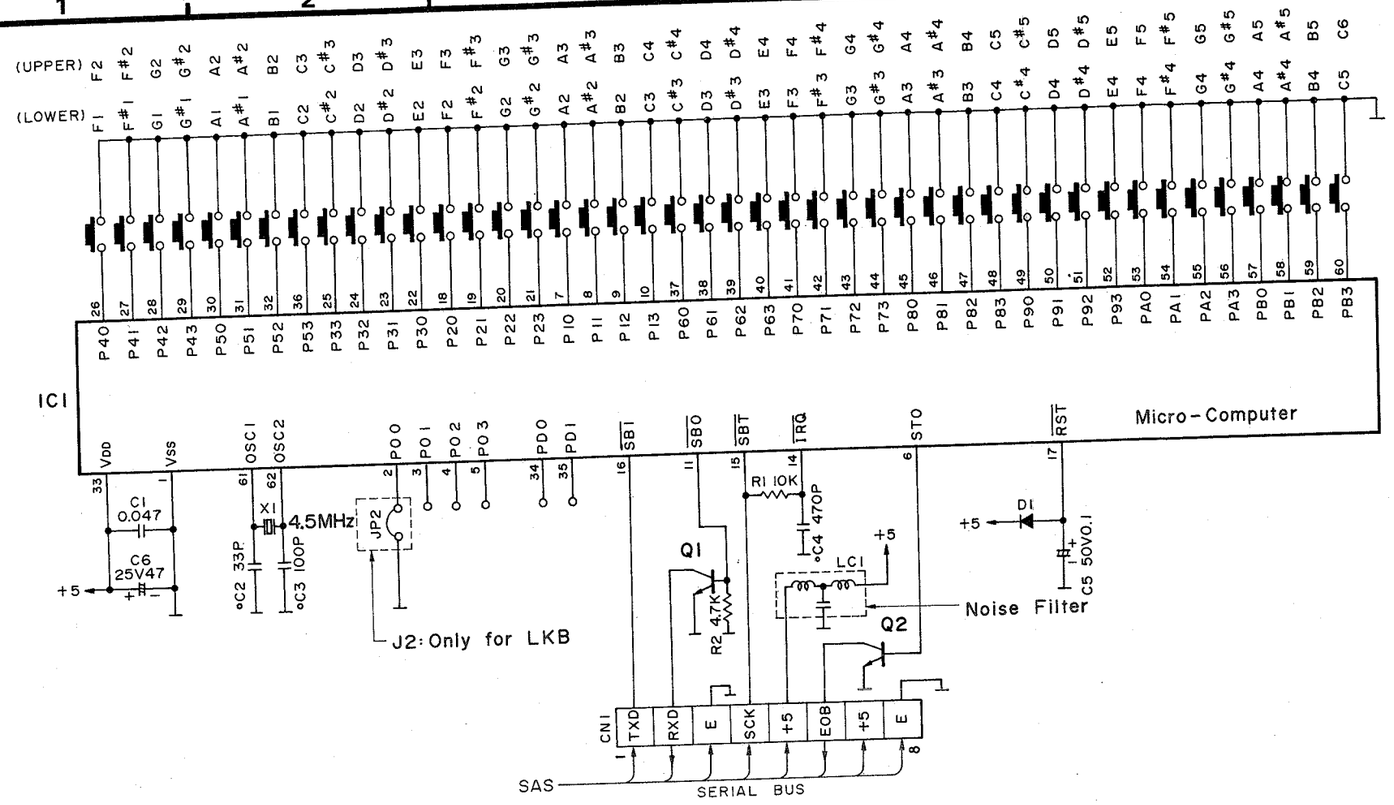
NOTES:

- IC'S
  - IC1: MN15621GSA
  - IC2, 3: SVIGM53217
- TRANSISTORS
  - Q1~4: 2SA830B
  - Q5, 6: 2SC1047C
- DIODES
  - D1~33: MA150IR
  - D34~49, 53~61: SEL2210SLFM1 (red)
  - D50~52: SEL2710KLFM1 (yellow)
- COMPONENTS COMBINATION
  - Z1: EXATA223S
- CERAMIC OSCILLATOR
  - X1: EF0A4R5M01A

CPL

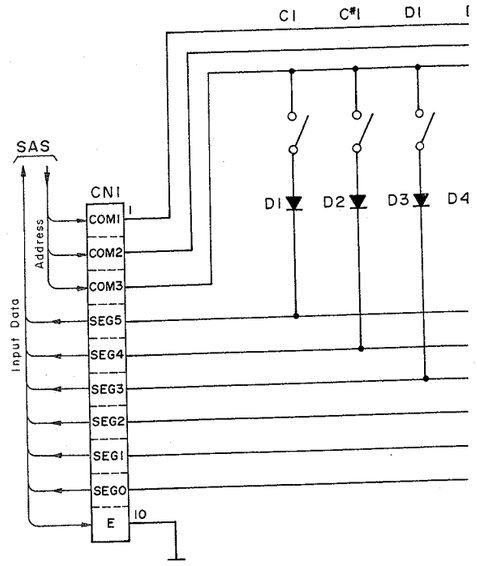
- DIODES
  - D1~4: SEL2210SLFM1 (red)

UPPER & LOWER KEYBOARD CIRCUIT DIAGRAM (UKB & LKB)

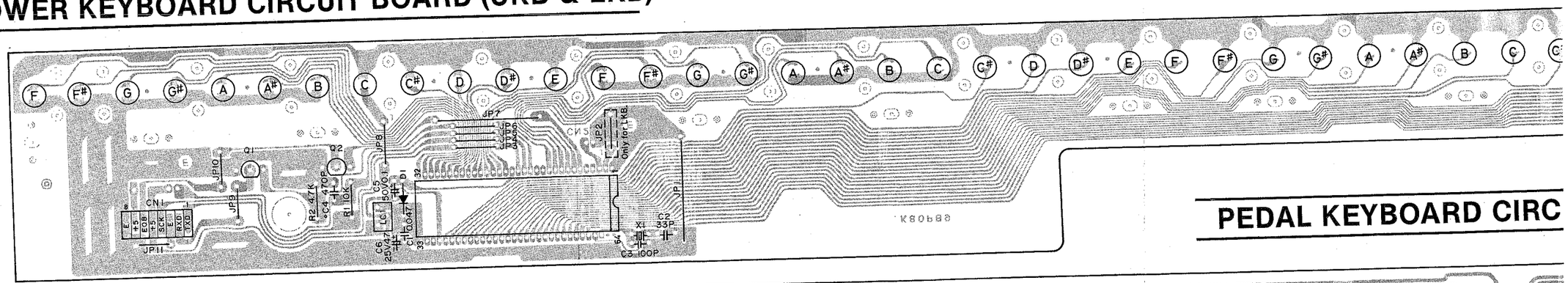


NOTES:
- IC
  IC1: MN15621GSA
- TRANSISTORS
  Q1, 2: 2SC1047C
- DIODE
  D1: MA150IR
- COMPONENTS COMBINATIONS
  LC1: EXATA223S
- CERAMIC OSCILLATOR
  X1: EF0A4R5M01A

PEDAL KEYBOARD CIRCUI

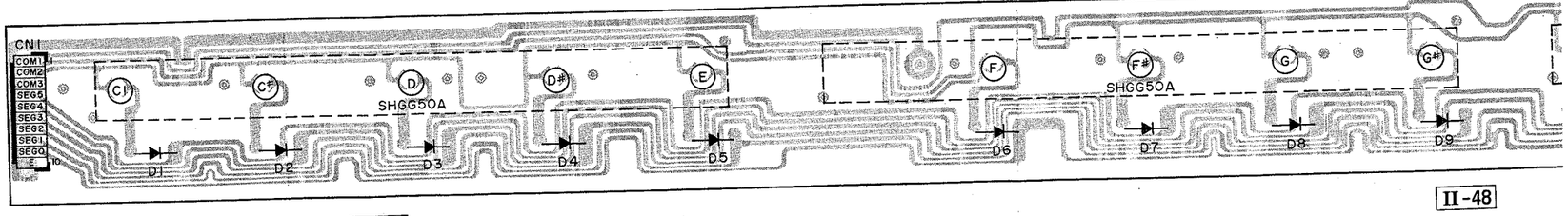


UPPER & LOWER KEYBOARD CIRCUIT BOARD (UKB & LKB)



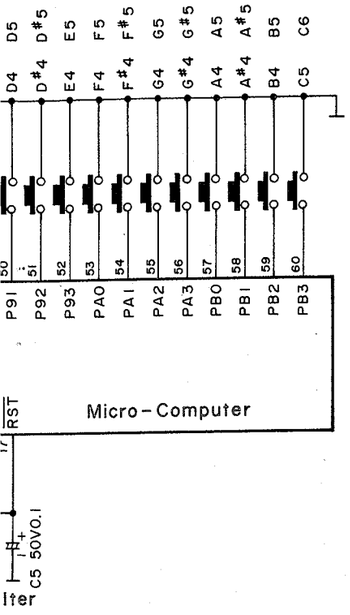
NOTES:
- IC
  IC1: MN15621GSA
- TRANSISTORS
  Q1, 2: 2SC1047C
- DIODE
  D1: MA150IR
- COMPONENTS COMBINATIONS
  LC1: EXATA223S
- CERAMIC OSCILLATOR
  X1: EF0A4R5M01A

PEDAL KEYBOARD CIRC

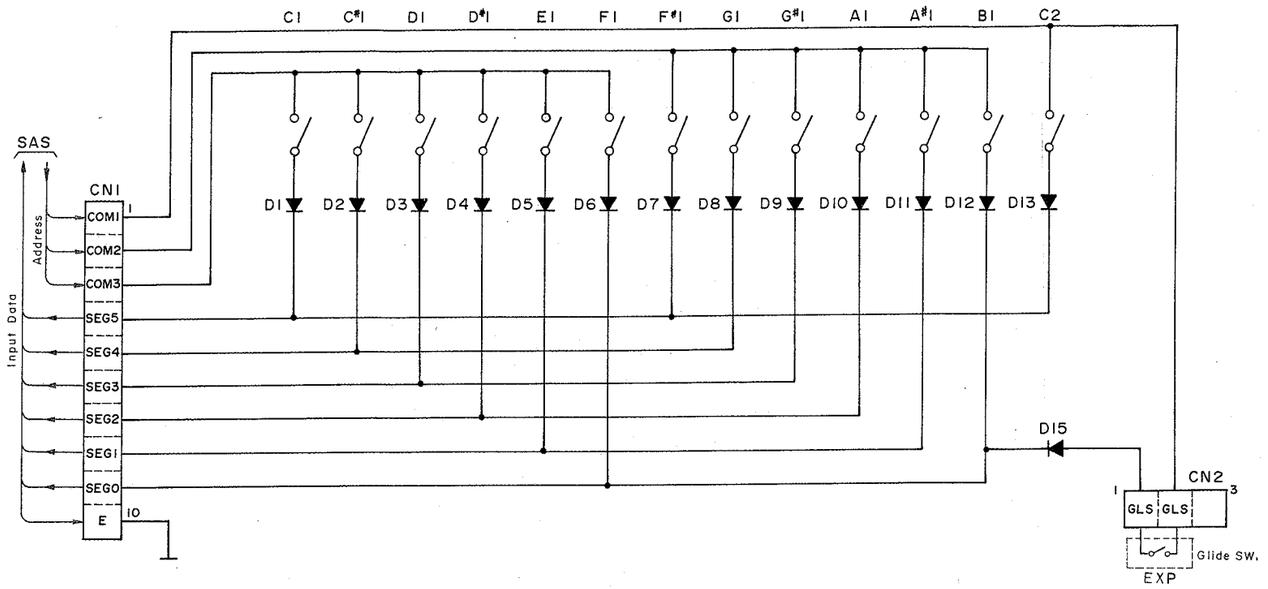


& LKB)

PEDAL KEYBOARD CIRCUIT DIAGRAM (PKB)



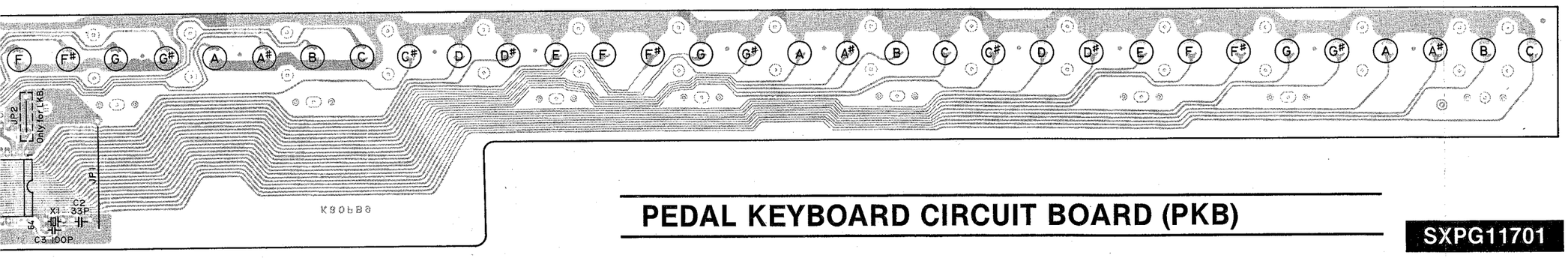
NOTES:
- IC
  IC1: MN15621GSA
- TRANSISTORS
  Q1, 2: 2SC1047C
- DIODE
  D1: MA150IR
- COMPONENTS COMBINATIONS
  LC1: EXATA223S
- CERAMIC OSCILLATOR
  X1: EF0A4R5M01A



NOTE:
D1~13, 15: MA150IR

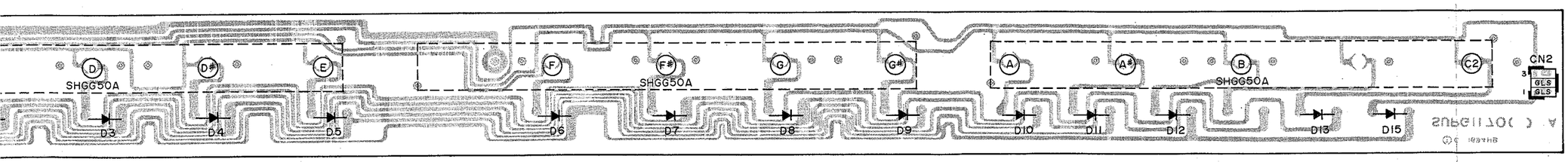
& LKB)

UKB: K80VPB4 **LKB: K80VPB2**



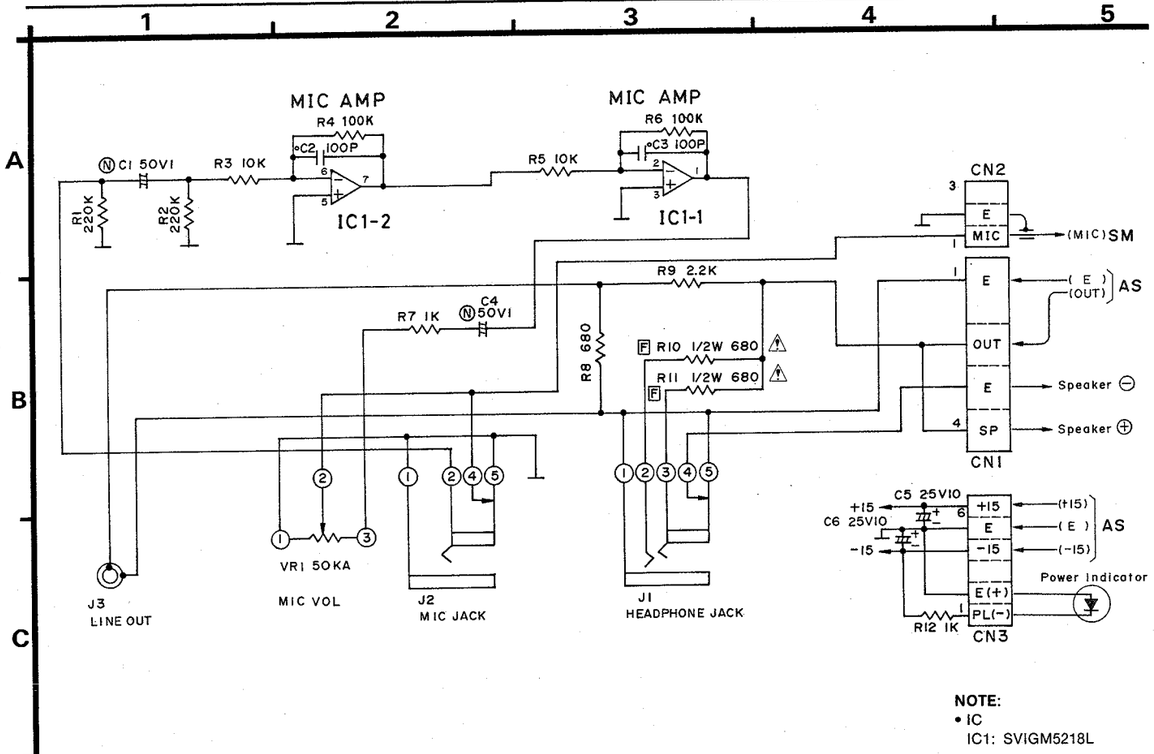
PEDAL KEYBOARD CIRCUIT BOARD (PKB)

SXPG11701



NOTE:
D1~13, 15: MA150IR

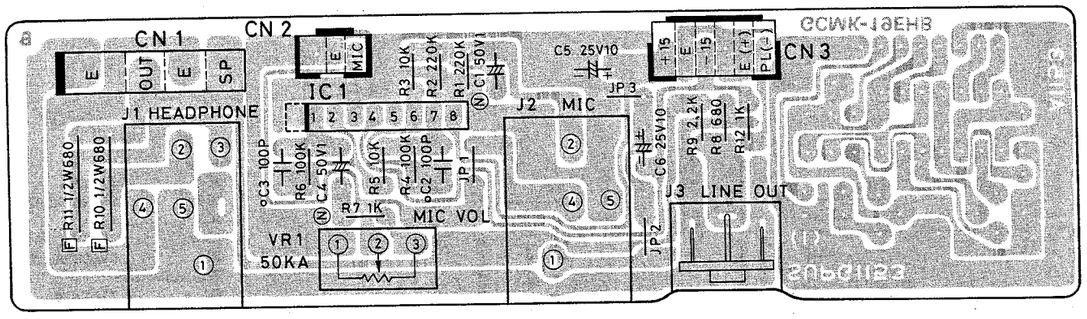
JACK CIRCUIT DIAGRAM (JACK)



NOTE:
• IC
IC1: SVIGM5218L

JACK CIRCUIT BOARD (JACK)

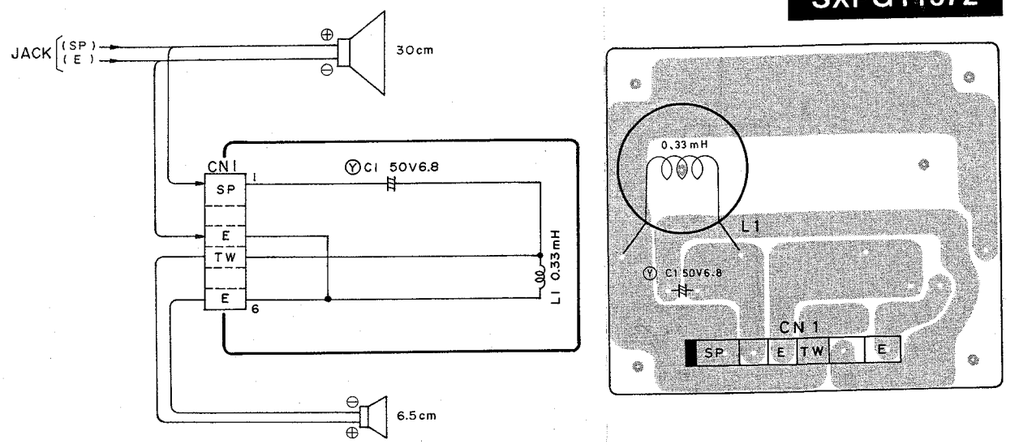
SXPGA11531



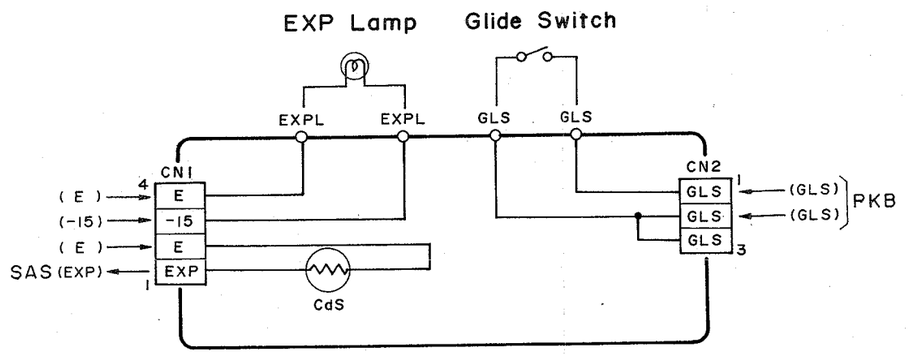
NOTE:
• IC
IC1: SVIGM5218L

NETWORK CIRCUIT (NW)

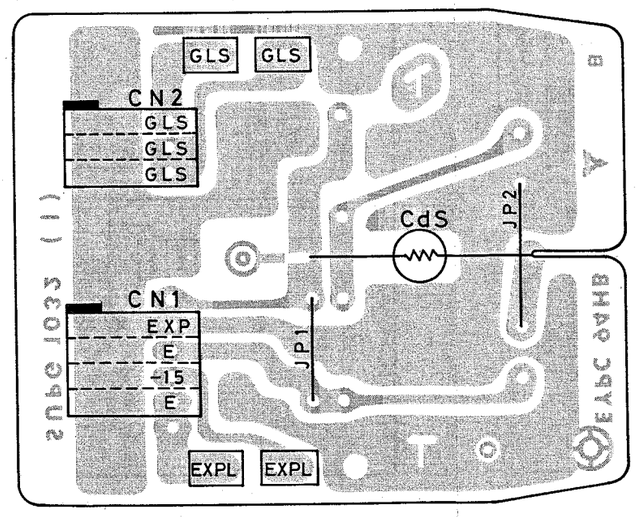
SXPG11572



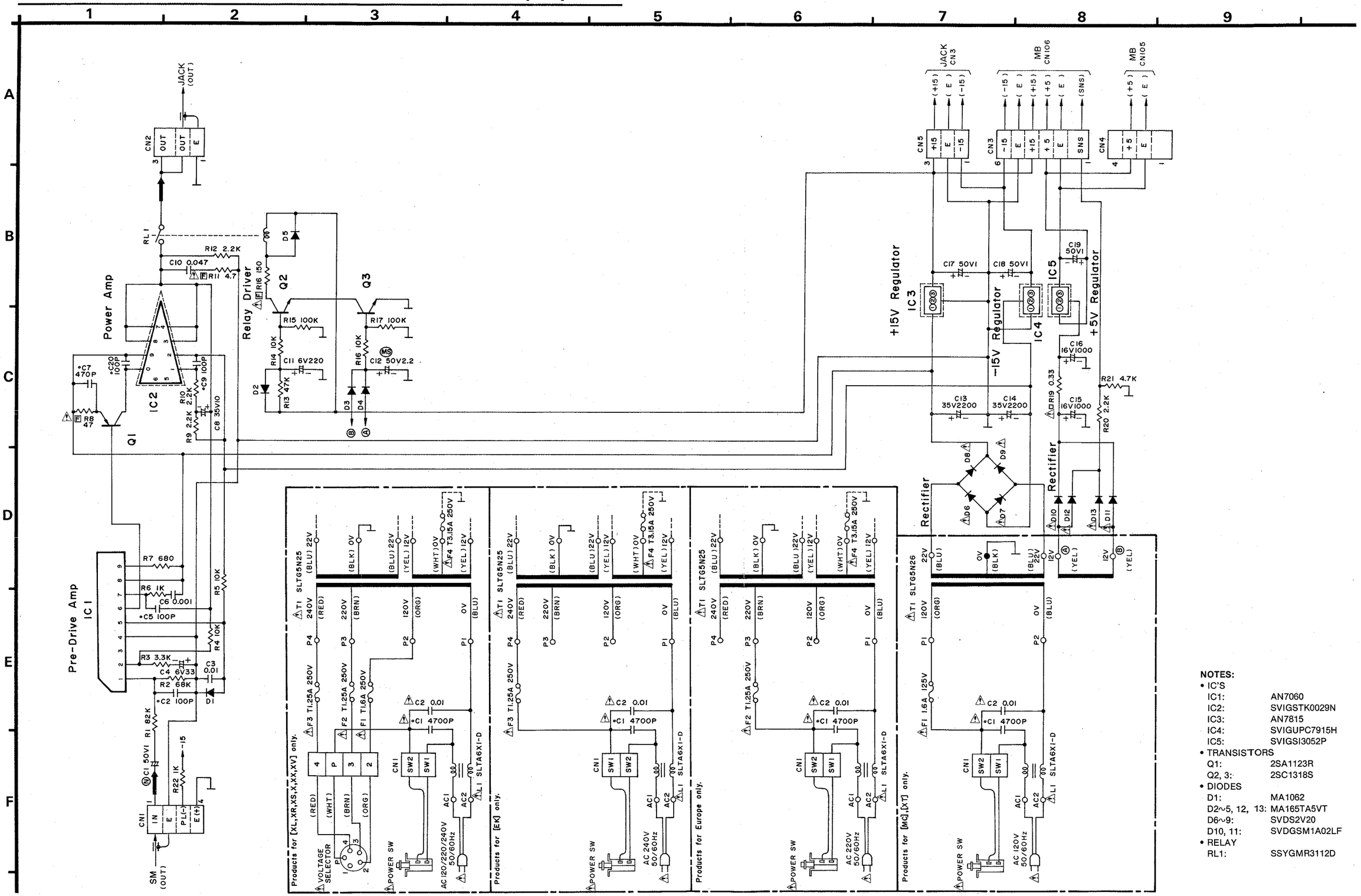
EXPRESSION CIRCUIT (EXP)



SXPG10322



AMP & POWER SUPPLY CIRCUIT DIAGRAM (AS)



NOTES:

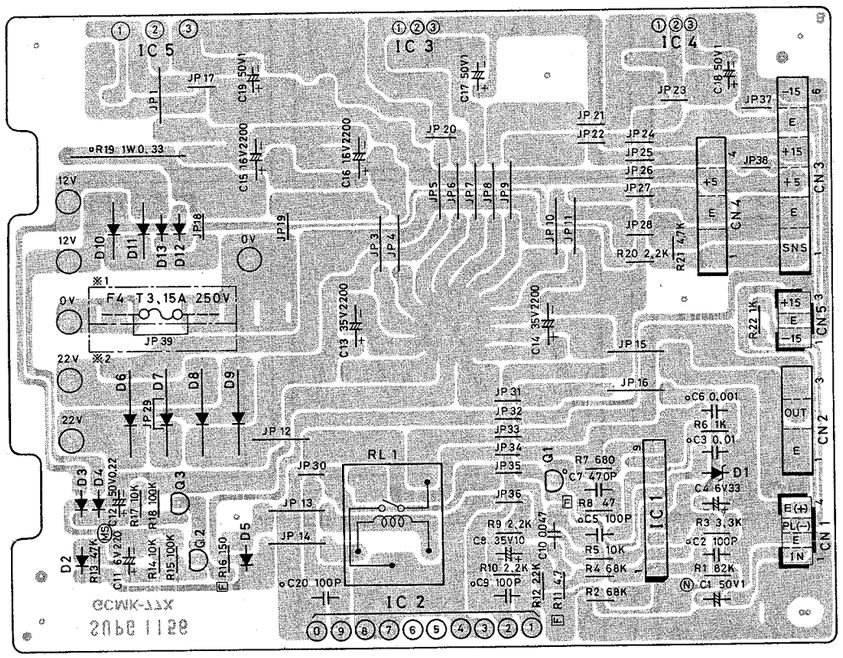
- IC'S
  - IC1: AN7060
  - IC2: SVIGSTK0029N
  - IC3: AN7815
  - IC4: SVIGUPC7915H
  - IC5: SVIGSI3052P
- TRANSISTORS
  - Q1: 2SA1123R
  - Q2, 3: 2SC1318S
- DIODES
  - D1: MA1062
  - D2~5, 12, 13: MA165TA5VT
  - D6~9: SVDS2V20
  - D10, 11: SVDGSM1A02LF
- RELAY
  - RL1: SSYGMR3112D

AMP & POWER SUPPLY CIRCUIT BOARD (AS)

[MC], [XT]

SXPG11561 ＊1...F4 T3.15A 250V

SXPG11562 ＊2...J39: Products for [MC], [XT] only.

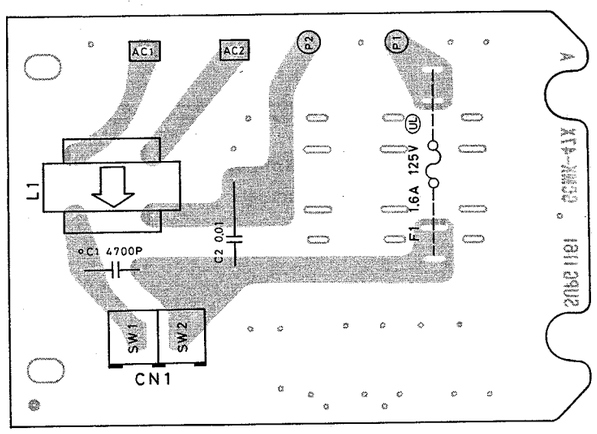


NOTES:

- IC'S
  - IC1: AN7060
  - IC2: SVIGSTK0029N
  - IC3: AN7815
  - IC4: SVIGUPC7915H
  - IC5: SVIGSI3052P
- TRANSISTORS
  - Q1: 2SA1123R
  - Q2, 3: 2SC1318S
- DIODES
  - D1: MA1062RT
  - D2~5, 12, 13: MA165TA5VT
  - D6~9: SVDS2V20
  - D10, 11: SVDGSM1A02LF
- RELAY
  - RL1: SSYGMR3112D

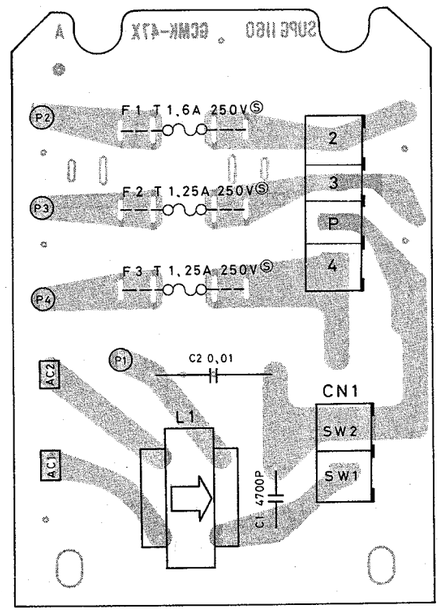
AC POWER SUPPLY CIRCUIT BOARD (ACP)

＊ Products for [MC], [XT] only. **SXPG11612**

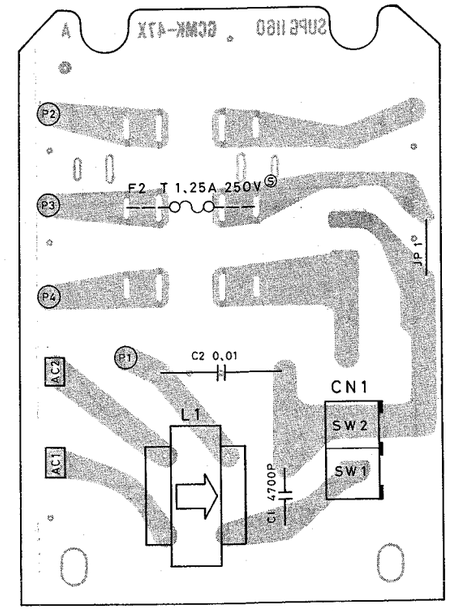


AC POWER SUPPLY CIRCUIT BOARD (ACP)

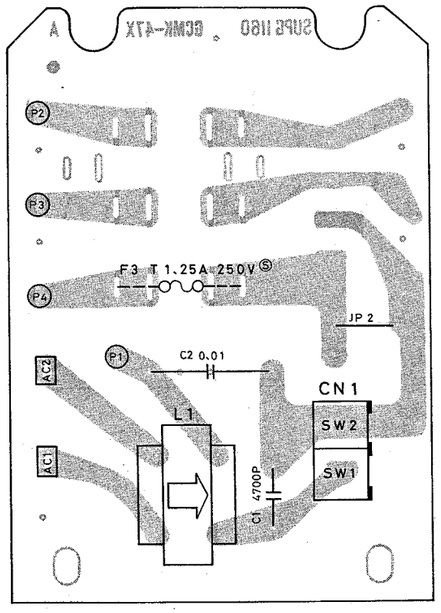
＊ Products for [XL], [XR], [XS], [X], [XX] and [XV] only. **SXPG11603**



＊ Products for Europe only. **SXPG11601**



＊ Products for [EK] only. **SXPG11602**

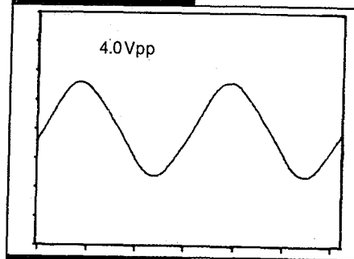


SX-E33 OUTPUT WAVEFORMS

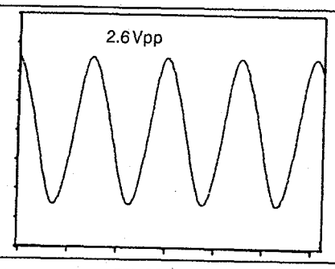
The waveform shown below may somewhat change due to variation of the products.

UPPER TAB

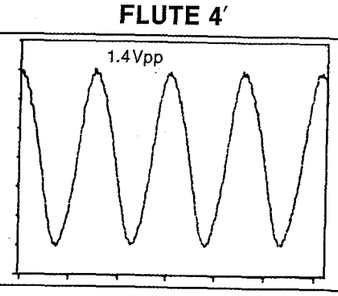
FLUTE 16′



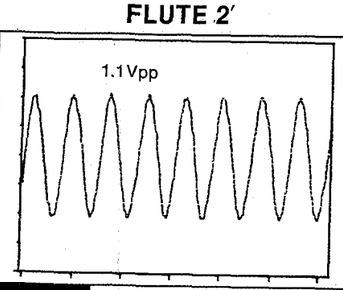
FLUTE 8′



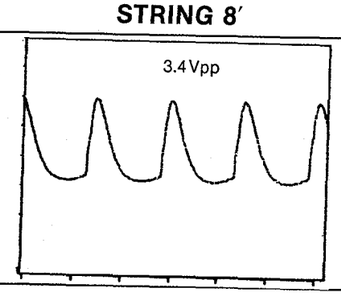
FLUTE 4′



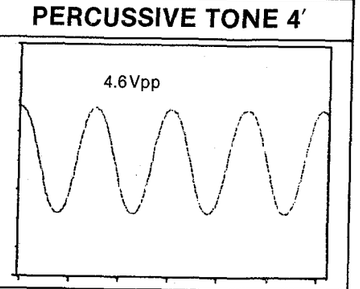
FLUTE 2′



STRING 8′

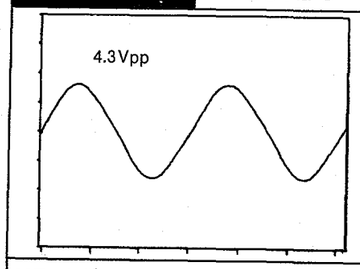


PERCUSSIVE TONE 4′

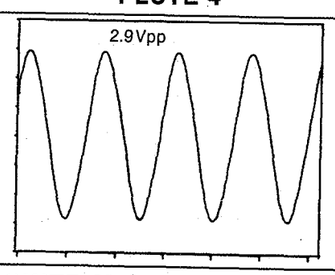


LOWER TAB

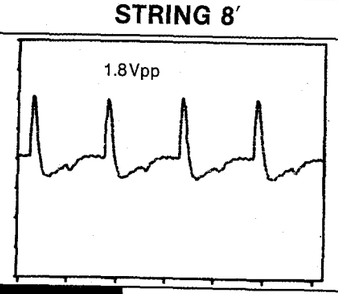
FLUTE 8′



FLUTE 4′

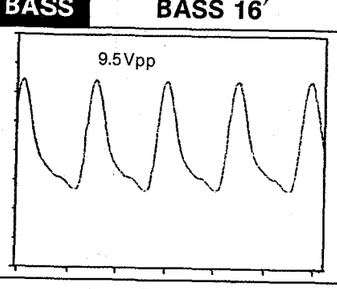


STRING 8′

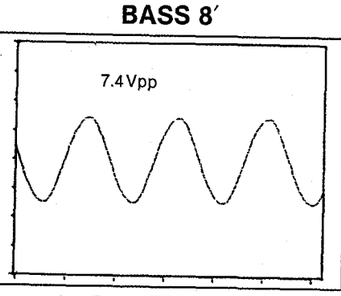


BASS

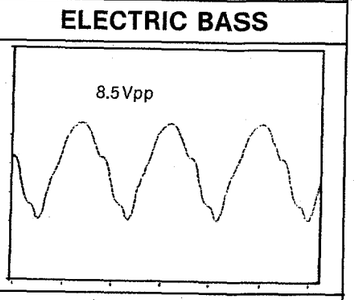
BASS 16′



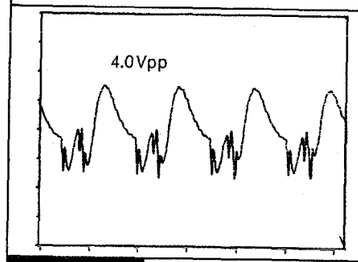
BASS 8′



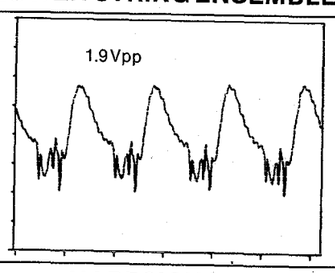
ELECTRIC BASS



UPPER STRING ENSEMBLE

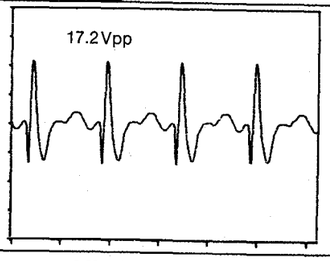


LOWER STRING ENSEMBLE

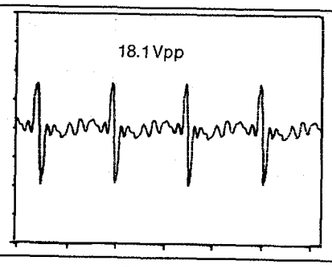


U. SOLO

TROMBONE



SAXOPHONE



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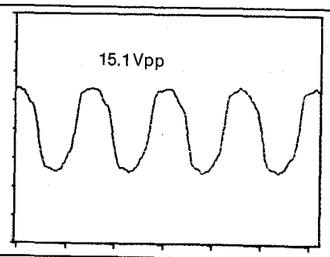
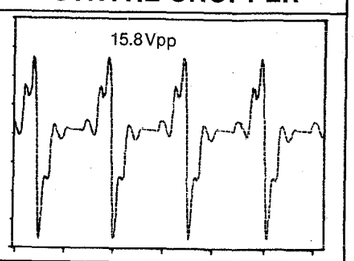
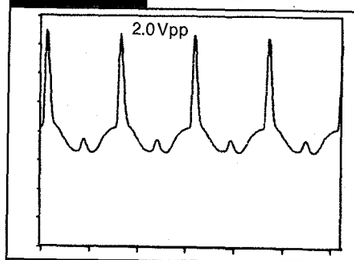


SYNTHE CHOPPER

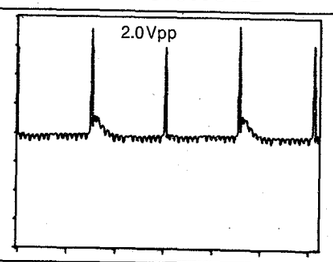


U. POLY

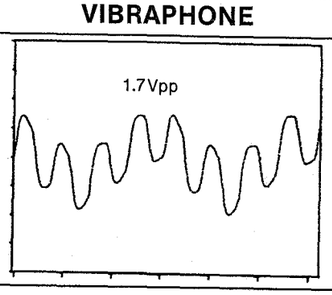
PIANO



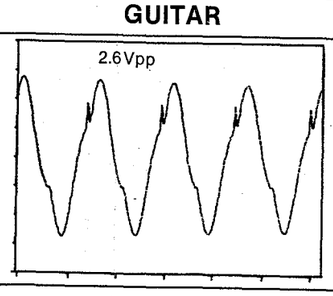
HARPSICHORD



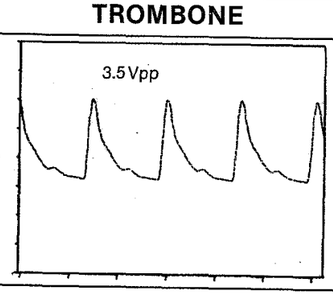
VIBRAPHONE



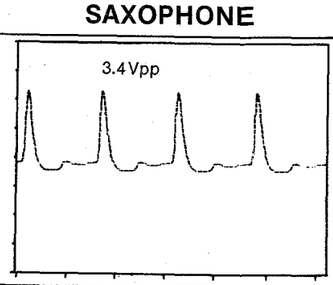
GUITAR



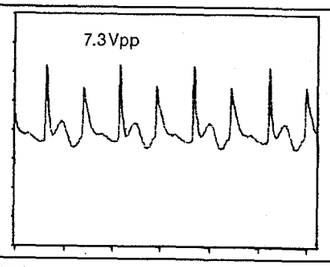
TROMBONE



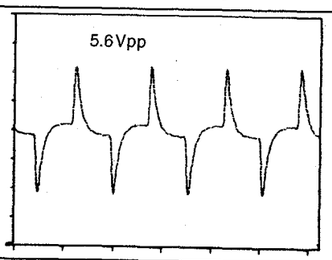
SAXOPHONE



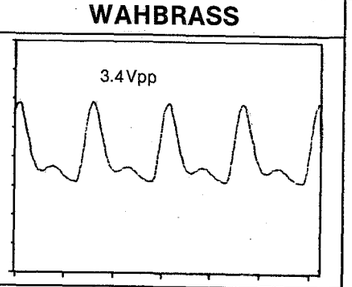
ACCORDION



CLARINET



WAHBRASS



■ Measuring Conditions

Main volume .....Max
Expression pedal ...Max
Other volumes.....Full or Max
Press key: Upper .....C2 key
Lower .....C2 key
Pedal .....A1 key

■ Measuring Terminals

30cm Speaker terminals

REPLACEMENT PARTS LIST...Electrical Parts

Notes:

1. Printed circuit boards are supplied only during the period of production. Tone generator module P.C.B. (SXPG11264) and rhythm module P.C.B. (SXPG11691) are supplied the same as for ordinary electrical parts.
2. Important safety notice
   Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
3. The "S" mark is service standard parts and may differ from production parts.
4. O mark are new parts.

■ ELECTRICAL PARTS

	Part No.	Description	Per/ Set
		PRINTED CIRCUIT BOARDS	
O	SXPG11264	Tone Generator Module	1
O	SXPG11274	System Assigner	1
O	SXPGA11283	Organ	1
O	SXPGB11283	Tone Generator	1
O	SXPGA11393	Orchestral & Percussive Presets	1
O	SXPGB11393	Selector & Mixing	1
O	SXPG11381	Bass & Drum Percussion	1
O	SXPG11691	Rhythm Module	1
O	SXPG11682	Accompaniment	1
O	SXPG11324	Solo Synthe Presets	1
O	SXPG11402	Celeste & String Ensemble	1
O	SXPG11413	Mother Board	1
O	SXPGA11491	Control Panel Switch Left	1
O	SXPGB11491	Control Panel Switch Right	1
O	SXPG11471	Control Panel Left	1
O	SXPG11481	Control Panel Right	1
O	SXPGA11531	Jack	1
O	SXPG11572	Network	1
O	SXPG11701	Pedal Keyboard	1
O	K80VPB2	Lower Keyboard	1
O	K80VPB4	Upper Keyboard	1
	SXPG10322	Expression	1
O	SXPG11561	Amp & Power Supply	1
O	SXPG11562	Amp & Power Supply, (MC, XT) only	1
O	SXPG11601	AC Power Supply	1
O	SXPG11603	AC Power Supply, (X, XX, XV, XL, XR, XS) only	1
O	SXPG11612	AC Power Supply, (MC, XT) only	1
O	SXPG11602	AC Power Supply, (EK) only	1

	Part No.	Description		Per/ Set
		INTEGRATED CIRCUITS		
O	SVIG23128218	External ROM	SAS	1
O	SVIGM512820R	External RAM, 16,384-Bit CMOS	SAS	1
O	SVIG2364E059	65,536-Bit Mask Programmable ROM	SPS	1
O	SVIG7811G028	1 Chip, 8-Bit Microcomputer	SAS	1
O	SVIGM8041111	1 Chip, 8-Bit Microcomputer	OP	1
O	SVIGM8049569	1 Chip, 8-Bit Microcomputer	SPS	1
O	SVIG65002014	Gate Array (LAS)	SAS	1
O	SVIG65002017	Gate Array (DAC)	SAS	1
O	SVIG65002018	Gate Array	SM	1
O	SVIG65002019	Gate Array	SPS	1
	SVIGM74LS00	Quadruple 2-Input Positive NAND Gates	SAS	1
	SVIGM74LS02	Quadruple 2-Input Positive NOR Gates	SAS	1
	SVIGM74LS32	Quadruple 2-Input Positive OR Gates	SAS	1
	SVIGM74LS138	Decoder	SAS	2
	SVIGMSM4011	Quadruple 2-Input NAND Gates	CSM, BD	7

	Part No.	Description		Per/ Set
	SVIGTC40H004	Hex Inverters		4
O	SVIGTC40H374	Octal D-Type Flip Flops	BD, ACC	2
	SVIGTC40H393	4-Bit Binary Counter	TG, DB.	2
	SVIGTC4013BP	Dual D-Type Flip-Flops	ACC	1
	SVIGTC4050BP	Hex Buffers	BD	2
	SVIGHD14051B	8-Channel Multiplexer	OP	1
O	SVIGHD14046B	Phase-Locked Loop	SPS	1
	SVIGM53217	Hex Buffer/Driver with Open Collector		6
	SVIGM53207	Hex Buffer/Driver with Open Collector	SM	3
O	SVIGM53216	Hex Inverters	SAS, ACC	2
O	SVIGM5216L	Operational Amplifier	SM	1
O	SVIGM5218L	Operational Amplifier		55
O	SVIGNJM082D	Operational Amplifier		3
	SVIGUPC624C	8-Bit D-A Converter	SPS	1
	SVIGBA6110	VCA (Voltage Controlled Amplifier)		6
O	SVIGBA6704	VCF (Voltage Controlled Filter)	OP	1
	SVIGUPD4066C	Quadruple Bilateral Switch		11
O	SVIGTA61	Transistor Array	CPSL	1
	AN6913	Dual Comparator	BD	1
	AN6552F	Operational Amplifier	SPS	1
	MN3006	BBD for Audio Signal Delays (512-stage)	CSM	6
O	MN15621GSA	Micro-Computer		5
	AN7060	Power Amp Driver	AS	1
O	AN7815	Voltage Regulator	AS	1
O	SVIGSI3052P	Voltage Regulator	AS	1
	SVIGUPC7915H	Voltage Regulator	AS	1
	SVIGSTK0029N	Power IC	AS	1

		TRANSISTORS	
	2SA830B		8
	2SA1015-GR		10
	2SA1123R		1
	2SC1047C		11
	2SC1318S		2
	2SC2320LFG		25
O	2SJ40CE	FET	6
		DIODES	
S	MA162A	MA150IR	82
O	MA165TA5VT		148
	MA1062	Zener	1
	SVDGSM1A02LF	Rectifier	3
O	SVDS2V20 ⚠	Rectifier	4

	Part No.	Description	Per/ Set
	COILS, QUARTZ & CERAMIC OSCILLATOR		
○	SVQG43U1200A	12MHz Quartz Oscillator	1
○	EF0A4R5M01A	4.5MHz Ceramic Oscillator	3
○	SVQGCSA600MT	6MHz Ceramic Oscillator	1
○	SVQGCSA110MT	11MHz Ceramic Oscillator	1
○	ELQS180KB	Coil, 18μH, Master Clock OSC	2
○	SLCSC331KU	Coil, 0.33mH, Network	1
	LED'S, LAMP		
	LN29RP	LED (Power Indicator)	1
○	SEL2210SLFM1	LED (red)	92
○	SEL2710KLFM1	LED (yellow)	7
	XAMR55P	Lamp (Expression)	1
	CDS		
	SVEG5	Light Sensitive Device	1
	SWITCHES		
○	ESB90712V ⚠	Power Switch	1
○	SSHG1029A	Switch, for Tang Type	26
○	SSHG1030A	Switch, for Push Type	86
	ESE3758 ⚠	Voltage Selector (XL, XX, XV, X, XS, XR) only	1
	VARIABLE RESISTORS		
○	EVD3520B24G	20KΩB, Tempo Control	1
○	EWHD5A576A54	50KΩA, Mic Volume	1
	SEMI-FIXED RESISTORS		
○	EVN60AA00B24	20KΩ	5
○	EVN60AA00B53	5KΩ	1
○	EVN60AA00B23	2KΩ	2
	COMPONENTS COMBINATIONS		
○	SREG8A0462M	Custom Block Resistor	2
○	EXBP84222MM	2.2KΩ×4, Block Resistor	2
○	EXBP84103MM	10KΩ×4, Block Resistor	1
○	EXBP86103MM	10KΩ×6, Block Resistor	1
○	EXBP86122MM	1.2KΩ×6, Block Resistor	1
○	EXBP88103MM	10KΩ×8, Block Resistor	1
○	EXBP88222MM	2.2KΩ×8, Block Resistor	1
○	EXBP88334MM	330KΩ×8, Block Resistor	1
○	EXBP88472MM	4.7KΩ×8, Block Resistor	2
○	EXBP88223MM	22KΩ×8, Block Resistor	1
○	EXATA223S	Noise Suppression Filter	6
	JACKS		
	SJJG30A	Line Out Terminals	1
○	SJJG200A	Headphones Jack	1
○	SJJG210A	Mic Jack	1

	Part No.	Description	Per/ Set
	SPEAKERS		
○	EAS30PL110S	30cm, 6Ω	1
○	EAS65PH71S	6.5cm, 6Ω	1
	FUSES		
	XBA2C31TR0 ⚠	3.15A, 250V	1
	XBA2C12TR0 ⚠	1.25A, 250V	1
	XBA2C12TR0 ⚠	1.25A, 250V (X, XX, XV, XL, XR, XS) only	2
	XBA2C16TR0 ⚠	1.6A, 250V (X, XX, XV, XL, XR, XS) only	1
	XBA1F16NU14 ⚠	1.6A, 125V (MC, XT) only	1
	TRANSFORMERS		
○	SLTG5N25 ⚠	Power Transformer	1
○	SLTG5N26 ⚠	Power Transformer (MC, XT) only	1
	SLTA6X1-D ⚠	Line Filter	1
	AC CORD, AC OUTLET, PLUG		
	SJAG24 ⚠	AC Cord	1
	SJAG23 ⚠	AC Cord (XL, XR) only	1
	SJAG22 ⚠	AC Cord (MC, XT) only	1
	SJAG25 ⚠	AC Cord (EK, XS) only	1
	SJP5213-1 ⚠	Attachment Plug (X, XX, XV) only	1
	ASSEMBLY PARTS		
	SXVG5020A	Expression Unit	1
	SJUG20804N	Reverb Unit	1
	SHRG550	Cussion for Reverb Unit	2
	WIRING PARTS (See wiring diagram on page II-3, II-4.)		
○	SWKG155	Connector, with Wire	1
○	SWKG0821LSA	Connector, with Wire	1
○	SWKG0823LSC	Connector, with Wire	1
○	SWKG107ZA	Connector, with Wire	1
○	SWKG0312LSA	Connector, with Wire	1
○	SWKG108LSA	Connector, with Wire	1
○	SWKG0613LSA	Connector, with Wire	1
○	SWKG0416ZB	Connector, with Wire	1
○	SWKG0617ZB	Connector, with Wire	1
	SWKG354	Connector, with Wire (XS, XL, XR, X, XV, XX) only	1

■ Numbering System of Resistor

Resistor Type	Wattage	Tolerance
ERD : Carbon ERD—F : Carbon Flame-Proof	S2 : 1/4W 2 : 1/4W 25 : 1/4W 50 : 1/2W	G : ±2% J : ±5% K : ±10%
ERG : Metal Oxide ERQ : Fuse Type Metal	1 : 1W 2 : 2W	

Example

ERD	S2	T	J	101
Type	Wattage	Shape	Tolerance	Value

ERD	2	F	C	G	101
Type	Wattage	Flame Proof	Fuse Type	Tolerance	Value

ERG	1	AN	J	121
Type	Wattage	Shape	Tolerance	Value

ERQ	1	C	K	P	R33
Type	Wattage	Flame Proof	Tolerance	Shape	Value

■ Numbering System of Resistor

Capacitor Type	Symbol Mark	Voltage		Tolerance
		ECEA Type	Others	
ECEA : Electrolytic		0J : 6.3V	1H : 50V DC	ECEA Type : ±20%
ECEA—N : Non-Polar Electrolytic	Ⓝ	1A : 10V	1E : 25V DC	J : ±5%
ECEA—Y : Non-Polar Electrolytic	Ⓨ	1C : 16V		K : ±10%
ECEA—M : Electrolytic, MSR Series	Ⓜ	1E : 25V		M : ±20%
ECEA—Z : Electrolytic, Z Series	Ⓩ	1V : 35V		
ECQV : TF Capacitor	Ⓣ	1H : 50V		
ECC : Ceramic	O	50Y : 50V		
ECK : Ceramic	O	50M : 50V		
ECQM : Polyester		16M : 16V		
		50Z : 50V		

Example

ECEA	0J	U	330
Type	Voltage	Peculiarity use	Value

ECEA	50	M (Z)	R47	R
Type	Voltage	Peculiarity use	Value	Special use

ECQV (M)	1H	102	J
Type	Voltage	Value	Tolerance

ECC (K)	R	1H	220	J
Type	Shape	Valtage	Value	Tolerance

Part No.	Description	Per/ Set
RESISTORS		
ERDS2TJ100	10Ω	
ERDS2TJ120	12Ω	
ERDS2TJ150	15Ω	
ERDS2TJ180	18Ω	
ERDS2TJ220	22Ω	
ERDS2TJ270	27Ω	
ERDS2TJ330	33Ω	1
ERDS2TJ390	39Ω	
ERDS2TJ470	47Ω	29
ERDS2TJ560	56Ω	
ERDS2TJ680	68Ω	
ERDS2TJ820	82Ω	
ERDS2TJ101	100Ω	6
ERDS2TJ121	120Ω	
ERDS2TJ151	150Ω	
ERDS2TJ181	180Ω	
ERDS2TJ221	220Ω	
ERDS2TJ271	270Ω	
ERDS2TJ331	330Ω	6
ERDS2TJ391	390Ω	

Part No.	Description	Per/ Set
ERDS2TJ471	470Ω	10
ERDS2TJ561	560Ω	8
ERDS2TJ681	680Ω	4
ERDS2TJ821	820Ω	2
ERDS2TJ102	1KΩ	32
ERDS2TJ122	1.2KΩ	45
ERDS2TJ152	1.5KΩ	2
ERDS2TJ182	1.8KΩ	
ERDS2TJ222	2.2KΩ	19
ERDS2TJ272	2.7KΩ	2
ERDS2TJ332	3.3KΩ	35
ERDS2TJ392	3.9KΩ	
ERDS2TJ472	4.7KΩ	83
ERDS2TJ562	5.6KΩ	2
ERDS2TJ682	6.8KΩ	14
ERDS2TJ822	8.2KΩ	4
ERDS2TJ103	10KΩ	81
ERDS2TJ123	12KΩ	8
ERDS2TJ153	15KΩ	29
ERDS2TJ183	18KΩ	8
ERDS2TJ223	22KΩ	20

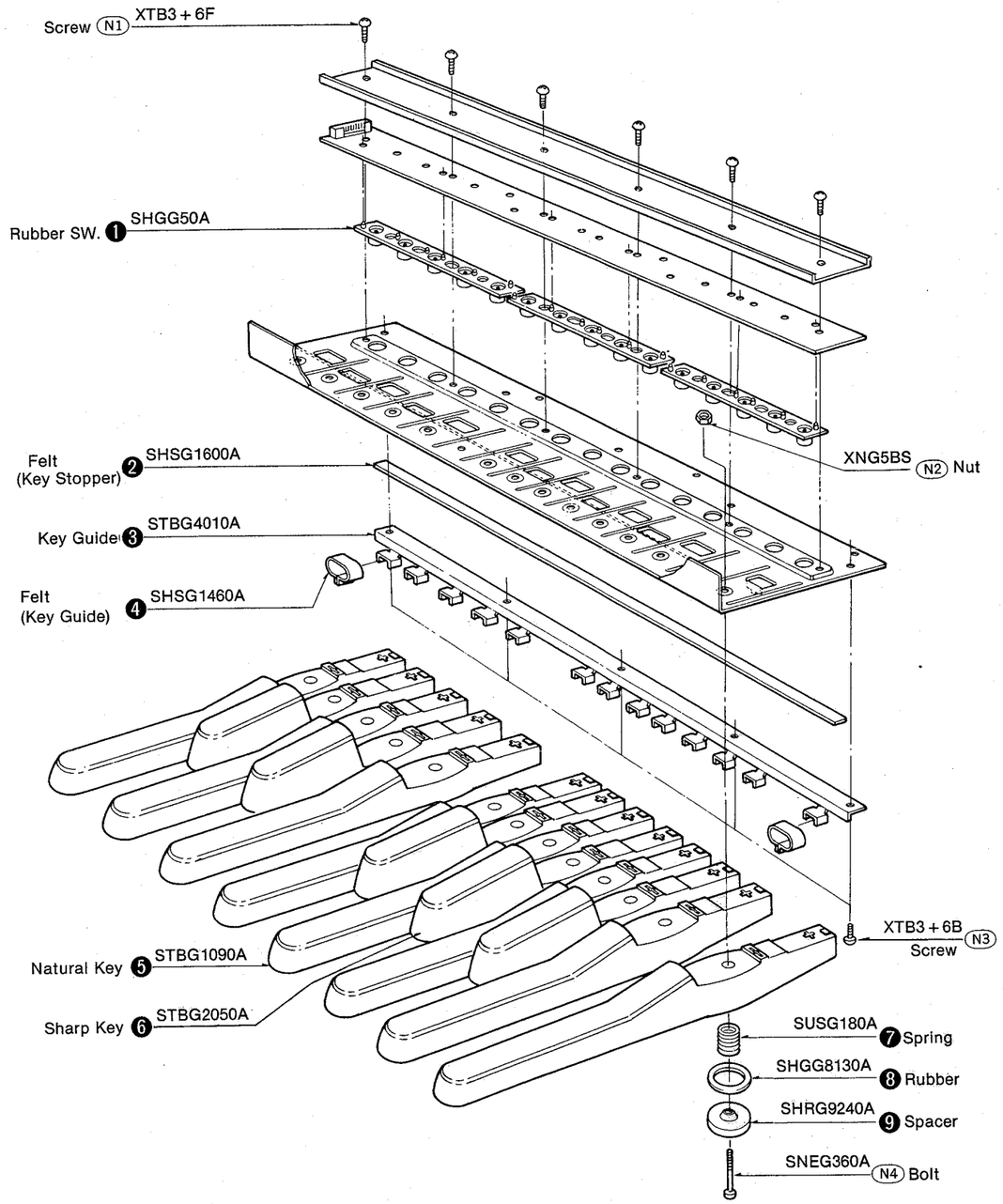
	Part No.	Description	Per/ Set
	ERDS2TJ273	27KΩ	6
	ERDS2TJ333	33KΩ	43
	ERDS2TJ393	39KΩ	2
	ERDS2TJ473	47KΩ	49
	ERDS2TJ563	56KΩ	28
	ERDS2TJ683	68KΩ	38
	ERDS2TJ823	82KΩ	29
	ERDS2TJ104	100KΩ	79
	ERDS2TJ124	120KΩ	9
	ERDS2TJ154	150KΩ	39
	ERDS2TJ184	180KΩ	7
	ERDS2TJ224	220KΩ	28
	ERDS2TJ274	270KΩ	2
	ERDS2TJ334	330KΩ	2
	ERDS2TJ394	390KΩ	
	ERDS2TJ474	470KΩ	10
	ERDS2TJ564	560KΩ	1
	ERDS2TJ684	680KΩ	4
	ERDS2TJ824	820KΩ	
	ERDS2TJ105	1MΩ	12
	ERDS2TJ125	1.2MΩ	
	ERDS2TJ155	1.5MΩ	1
	ERDS2TJ185	1.8MΩ	
	ERDS2TJ225	2.2MΩ	
	ERDS2TJ275	2.7MΩ	
	ERDS2TJ335	3.3MΩ	
	ERDS2TJ395	3.9MΩ	
	ERDS2TJ475	4.7MΩ	
	ERDS2TJ565	5.6MΩ	
	ERDS2TJ685	6.8MΩ	
	ERDS2TJ825	8.2MΩ	
⚠	ERG1ANJ121	Ⓕ 1W 120Ω	1
⚠	ERD25FVJ4R7	Ⓕ 1/4W 4.7Ω	1
⚠	ERD25FVJ470	Ⓕ 1/4W 47Ω	1
⚠	ERD25FVJ151	Ⓕ 1/4W 150Ω	1
⚠	ERD2FCJ6R8	Ⓕ 1/4W 6.8Ω, Fuse Type	2
⚠	ERD2FCG220	Ⓕ 1/4W 22Ω, Fuse Type	28
⚠	ERD2FCG101	Ⓕ 1/4W 100Ω, Fuse Type	1
⚠	ERD2FCG100	Ⓕ 1/4W 10Ω, Fuse Type	12
⚠	ERD2FCJ4R7	Ⓕ 1/4W 4.7Ω, Fuse Type	10
⚠	ERD50FJ681	Ⓕ 1/2W 680Ω	2
⚠	ERQ1CKPR33	Ⓕ 1W 0.33Ω, Fuse Type	1

CAPACITORS

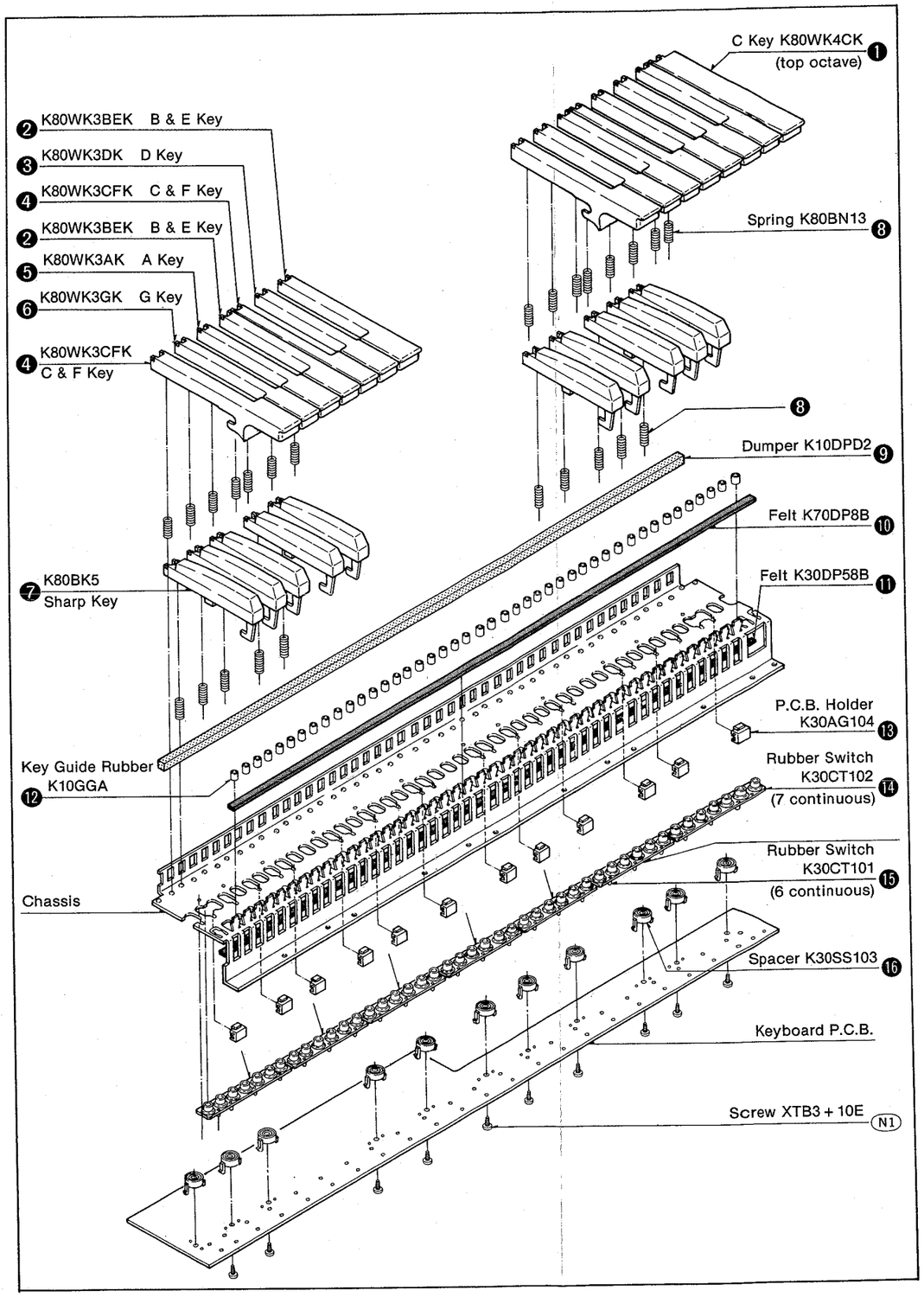
	ECEA0JU330	6.3V 33μF	1
	ECEA0JU470	6.3V 47μF	1
	ECEA0JU101	6.3V 100μF	2
	ECEA0JU221	6.3V 220μF	7
	ECEA1CU100	16V 10μF	3
	ECEA1CU470	16V 47μF	11
	ECEA1CU101	16V 100μF	15
	ECEA1CU221	16V 220μF	2
	ECEA1CU331	16V 330μF	1
	ECEA1CU222	16V 2200μF	2
	ECEA1EU100	25V 10μF	4
	ECEA1EU330	25V 33μF	3
	ECEA1EU470	25V 47μF	4
	ECEA1EU101	25V 100μF	2

	Part No.	Description	Per/ Set
	ECEA1VU100	35V 10μF	1
	ECEA1VU222	35V 2200μF	2
	ECEA1HK0R1	50V 0.1μF	4
	ECEA1HUR47	50V 0.47μF	5
	ECEA1HU010	50V 1μF	14
	ECEA1H2R2	50V 2.2μF	9
	ECEA1H4R7	50V 4.7μF	1
	ECEA1CN100S	Ⓝ 16V 10μF	1
	ECEA1HN010S	Ⓝ 50V 1μF	9
	ECEA50Y6R8	Ⓨ 50V 6.8μF, Network	1
	ECEA50ZR1	Ⓩ 50V 0.1μF	1
	ECEA50ZR15	Ⓩ 50V 0.15μF	3
	ECEA50ZR33	Ⓩ 50V 0.33μF	3
	ECEA50ZR47	Ⓩ 50V 0.47μF	2
	ECEA50ZR68	Ⓩ 50V 0.68μF	2
	ECEA16M10R	Ⓜ 16V 10μF	8
	ECEA50MR22R	Ⓜ 50V 0.22μF	1
	ECEA50MR1R	Ⓜ 50V 1μF	1
	ECQM1H102KV	0.001μF	28
	ECQM1H152KV	0.0015μF	15
	ECQM1H222KV	0.0022μF	16
	ECQM1H332KV	0.0033μF	12
	ECQM1H472KV	0.0047μF	18
	ECQM1H682KV	0.0068μF	14
	ECQM1H103KV	0.01μF	21
	ECQM1H123KV	0.012μF	1
	ECQM1H153KV	0.015μF	13
	ECQM1H223KV	0.022μF	12
	ECQM1H333KV	0.033μF	13
	ECQM1H473KV	0.047μF	14
	ECQM1H683KV	0.068μF	13
	ECQM1H104KV	0.1μF	11
	ECQV1H104JZ	Ⓣ 0.1μF	4
	ECQV1H154JZ	Ⓣ 0.15μF	1
	ECQV1H224JZ	Ⓣ 0.22μF	7
	ECQV1H334JZ	Ⓣ 0.33μF	5
	ECQV1H474JZ	Ⓣ 0.47μF	5
	ECCR1H220J5	○ 22PF	6
	ECCR1H330J5	○ 33PF	10
	ECCR1H470J5	○ 47PF	5
	ECCR1H680J5	○ 68PF	4
	ECCR1H101J5	○ 100PF	26
	ECCR1H151J5	○ 150PF	15
	ECCR1H221J5	○ 220PF	9
	ECCR1H331J5	○ 330PF	13
	ECCR1H471J5	○ 470PF	26
	ECCR1H681J5	○ 680PF	13
	ECKR1E473ZV	○ 0.047μF	56
⚠	ECKCVA1472MF	○ 4700PF, Line Capacitor	1
⚠	ECQU1A103MH	0.01μF, 125V, Across-the-Line Capacitor	1
⚠	ECQU2A103MF	0.01μF, 250V, Across-the-Line Capacitor	1
	EECW2R3A3R3	3.3F, 2.3V, Liquid Electrolyte Double Layer	3

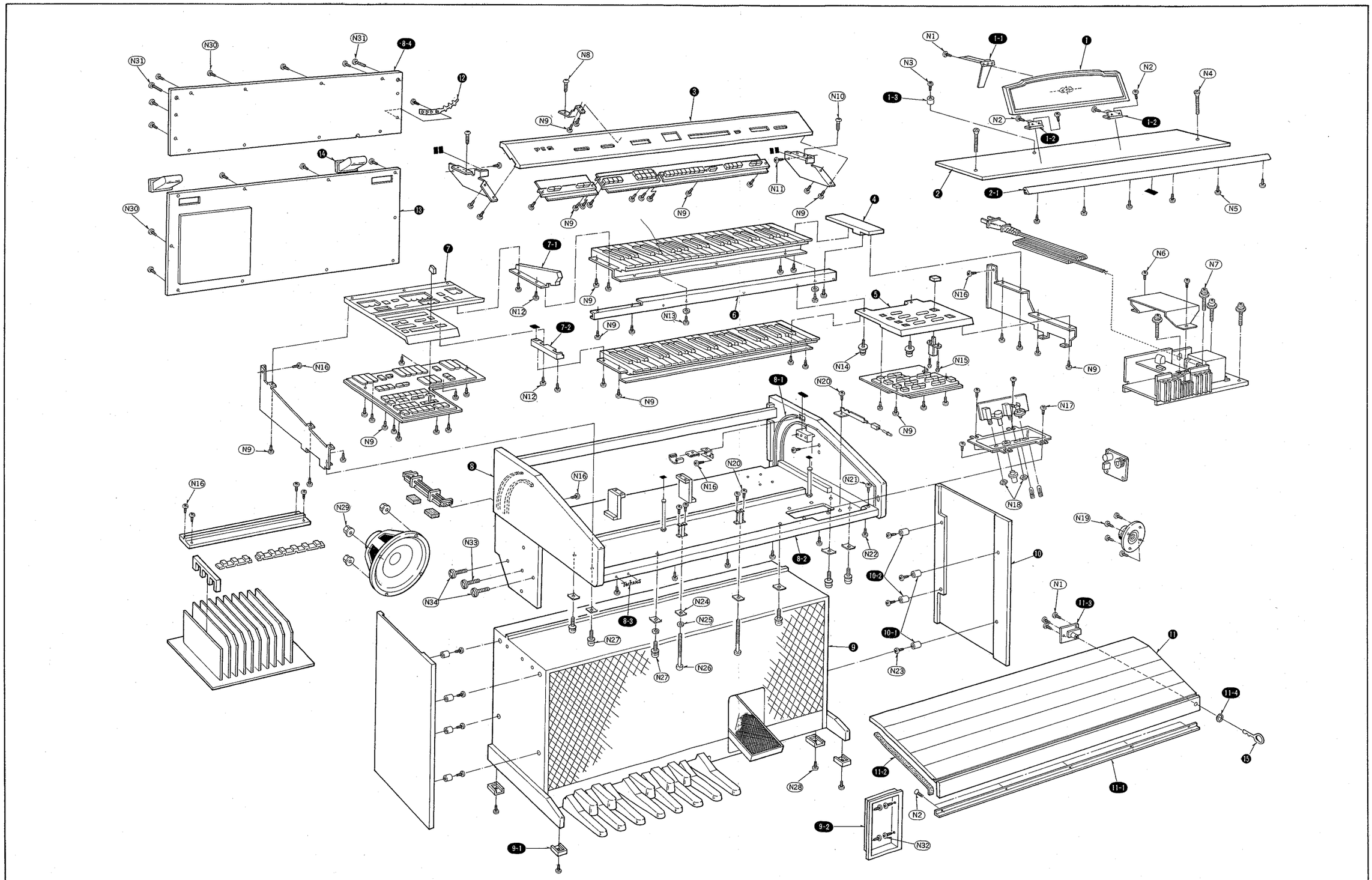
EXPLODED VIEWS OF PEDAL KEYBOARD



EXPLODED VIEWS OF MANUAL KEYBOARD


C Key K80WK4CK (top octave) ❶
❷ K80WK3BEK B & E Key
❸ K80WK3DK D Key
❹ K80WK3CFK C & F Key
❷ K80WK3BEK B & E Key
❺ K80WK3AK A Key
❻ K80WK3GK G Key
❹ K80WK3CFK C & F Key
Spring K80BN13 ❽
❽
Dumper K10DPD2 ❾
Felt K70DP8B ❿
Felt K30DP58B ⓫
❼ K80BK5 Sharp Key
P.C.B. Holder K30AG104 ⓭
Key Guide Rubber ⓬ K10GGA
Rubber Switch K30CT102 ⓮ (7 continuous)
Rubber Switch K30CT101 ⓯ (6 continuous)
Chassis
Spacer K30SS103 ⓰
Keyboard P.C.B.
Screw XTB3 + 10E (N1)

EXPLODED VIEWS OF CABINET



REPLACEMENT PARTS LIST...Mechanism

■ MECHANICAL PARTS

Ref. No.	Part No.	Description	Per/ Set
		CABINET	
○ 1	SKGG2K20C	Music Rack Ass'y	1
1-1	SBLG7	Stay	1
1-2	SBHG5003	Hinge	2
○ 1-3	SHGG9040A	Catch Rubber	1
○ 2	SKPG450A	Top Cover	1
○ 2-1	SGXG593A	Music Guide	1
○ 3	SGWG1380A	Control Panel	1
○ 4	SGWG5090A	Upper Right End Cover Panel	1
○ 5	SGWG3120C	Lower Right End Cover Panel	1
○ 6	SGXG1030AS	Ornament Panel for Lower Keyboard	1
○ 7	SYWG8030A	Left End Cover Panel	1
○ 7-1	SGEG180A	Ornament	1
○ 7-2	SGEG160A	Ornament	1
○ 8	SKMG770AS	Cabinet (Upper Unit)	1
○ 8-1	SKEG7330A	Sliding Cover Guide	2
○ 8-2	SGXG1070A	Front Panel	1
8-3	SGBS14	Technics Badge	1
○ 8-4	SKZG7290A	Rear Panel (upper)	1
○ 9	SKMG780AS	Cabinet (Lower Unit)	1
9-1	SHRG2040A	Foot	4
○ 9-2	SGXG1100A	Expression Ornament	1
○ 10	SKZGA290A	Side Panel	2
○ 10-1	SHGG9040B	Catch Rubber (black)	4
○ 10-2	SHGG9040A	Catch Rubber (brown)	4
○ 11	SKZG8180A	Sliding Cover Ass'y	1
○ 11-1	SGXG414A	Aluminium Ornament	1
11-2	SHSG1550A	Felt	2
○ 11-3	SBEG30A	Lock	1
○ 11-4	SBEG40A	Staple	1
12	SHRG104	Cord Band	1
○ 13	SYUG2060A	Rear Panel (lower)	1
14	SKHG5	Handle	2
		ACCESSORIES	
○ 15	SBEG60A	Key	1
	SBEG20A	Hexagonal Rod Wrench	1
		BENCH	
○	SZ-CM14A		1

MC

Ref. No.	Part No.	Description	Per/ Set
		CABINET [MC]	
○ 1	SKGG2L11A	Music Rack Ass'y	1
1-1	SBLG7	Stay	1
1-2	SBHG5003	Hinge	2
○ 1-3	SHGG9040A	Catch	1
○ 2	SKPG450B	Top Cover	1
○ 2-1	SGXG593B	Music Guide	1
○ 3	SGWG1380B	Control Panel	1
○ 4	SGWG5090B	Upper Right End Cover Panel	1
○ 5	SGWG3120D	Lower Right End Cover Panel	1
○ 6	SGXG1030AS	Ornament Panel for Lower Keyboard	1
○ 7	SYWG8030B	Left End Cover Panel	1
○ 7-1	SGEG180B	Ornament	1
○ 7-2	SGEG160B	Ornament	1
○ 8	SKMG770BS	Cabinet (Upper Unit)	1
○ 8-1	SKEG7330A	Sliding Cover Guide	2
○ 8-2	SGXG1070B	Front Panel	1
8-3	SGBS14	Technics Badge	1
○ 8-4	SKZG7290A	Rear Panel (upper)	1
○ 9	SKMG780BS	Cabinet (Lower Unit)	1
9-1	SHRG2040A	Foot	4
○ 9-2	SGXG1100A	Expression Ornament	1
○ 10	SKZGA290B	Side Panel	2
○ 10-1	SHGG9040B	Catch Rubber (black)	4
○ 10-2	SHGG9040A	Catch Rubber (brown)	4
○ 11	SKZG8180B	Sliding Cover Ass'y	1
○ 11-1	SGXG414A	Aluminium Ornament	1
11-2	SHSG1550A	Felt	2
○ 11-3	SBEG30A	Lock	1
○ 11-4	SBEG40A	Staple	1
12	SHRG104	Cord Band	1
○ 13	SYUG2060A	Rear Panel (lower)	1
14	SKHG5	Handle	2
		ACCESSORIES	
○ 15	SBEG60A	Key	1
	SBEG20A	Hexagonal Rod Wrench	1
		BENCH	
○	SZ-CM34B		1

	Ref. No.	Part No.	Description	Per/ Set
			SCREWS and WASHERS	
	N1	XTB3+10A	Screw	
	N2	XTS3+10AFVC	Screw	
	N3	XTB3+12AFZ	Screw	
	N4	XTC4+20AFVC	Screw	
	N5	XMM31+10	Screw	
	N6	XTW3+6L	Screw	
	N7	XYN4+F25S	Screw	
	N8	XTB35+10AFR	Screw	
	N9	XTB4+12A	Screw	
	N10	XTT4+12AFR	Screw	
	N11	XTB35+12A	Screw	
	N12	XTB4+12G	Screw	
	N13	XYN5+C10S	Screw	
	N14	XYN4+F10S	Screw	
	N15	SNEG740A	Screw	
	N16	XTB35+20A	Screw	
	N17	XTB35+10A	Screw	
	N18	XNS12FZ	Nut	
	N19	XTT4+12A	Screw	
	N20	XTB35+8A	Screw	
	N21	XTB3+10AFVC	Screw	
	N22	XTT35+10AFVC	Screw	
	N23	XTB3+14A	Screw	
	N24	SNEG150A	Washer	
	N25	XWA5B	Washer	
	N26	XSN5+85S	Screw	
	N27	XYN5+C25S	Screw	
	N28	XTB35+25A	Screw	
	N29	SNE499-1	Nut	
	N30	XTT4+16AFVC	Screw	
	N31	XTC4+25AFVC	Screw	
	N32	XTB3+14AFVC	Screw	
	N33	SNEG410A	Bolt (black)	
	N34	SNEG410B	Bolt (red)	
			MANUAL KEYBOARD	
○	1	K80WK4CK	Natural Key (Top Octave C Key)	1
○	2	K80WK3BEK	Natural Key (B and E Key)	7
○	3	K80WK3DK	Natural Key (D Key)	3
○	4	K80WK3CFK	Natural Key (C and F Key)	7
○	5	K80WK3AK	Natural Key (A Key)	4
○	6	K80WK3GK	Natural Key (G Key)	4
○	7	K80BK5	Sharp Key	18
○	8	K80BN13	Spring	44
	9	K10DPD2	Dumper	1
	10	K70DP8B	Felt	1
	11	K30DP58B	Felt	1
	12	K10GGA	Key Guide Rubber	44
	13	K30AG104	P.C.B. Holder	12
	14	K30CT102	Rubber Switch (7 continuous)	2
	15	K30CT101	Rubber Switch (6 continuous)	5
	16	K30SS103	Spacer	11
	N1	XTB3+10E	Screw	11

	Ref. No.	Part No.	Description	Per/ Set
			PEDAL KEYBOARD	
	1	SHGG50A	Rubber SW (5 continuous)	3
	2	SHSG1600A	Felt (Key Stopper)	1
	3	STBG4010A	Key Guide	1
	4	SHSG1460A	Felt (Key Guide)	13
	5	STBG1090A	Natural Key	8
	6	STBG2050A	Sharp Key	5
	7	SUSG180A	Spring	13
	8	SHGG8130A	Rubber	13
	9	SHRG9240A	Spacer	13
	N1	XTB3+6F	Screw	6
	N2	XNG5BS	Nut	13
	N3	XTB3+6B	Screw	5
	N4	SNEG360A	Bolt	13

	Part No.	Description	Per/ Set
		SWITCH MOLD ASSEMBLY	
○	SSHG9021AA	U & L poly presets, U & L solo synthesizer presets	1
○	SSHG9030AA	Voice Setting Computer, orchestral conductor	1
○	SSHG4012AA	String ensemble (upper volume, lower volume)	1
○	SSHG9036AA	lower, upper, bass, tremolo/celeste	1
○	SSHG9034AA	rhythm selector, rhythmic orchestra, Program Chard Computer and others	1
		KNOB	
	SBNG6010G	Tempo Control	1
	SBNG4010A	Mic Volume	1
		BUTTONS	
	SBCG20I47	power switch	1
○	SBCG140G04	solo synthe presets } upper orchestral conductor	1
○	SBCG140G05	poly presets } upper orchestral conductor	1
○	SBCG140G06	string ensemble } upper orchestral conductor	1
○	SBCG140G08	tab voices } upper orchestral conductor	1
○	SBCG140H04	solo synthe presets } lower orchestral conductor	1
○	SBCG140H05	poly presets } lower orchestral conductor	1
○	SBCG140H06	string ensemble } lower orchestral conductor	1
○	SBCG140H08	tab voices } lower orchestral conductor	1
○	SBCG140L00	I, II, III } Voice Setting Computer	3
○	SBCG140D00	cancel } Voice Setting Computer	1
○	SBCG140B00	percussive presets } poly presets	4
○	SBCG140E00	orchestral presets } poly presets	5
○	SBCG170G00	full } poly presets	1
○	SBCG140F00	U & L solo synthesizer presets	4
○	SBCG170G00	Volume	2
○	SBCG170G00	string ensemble volume	4

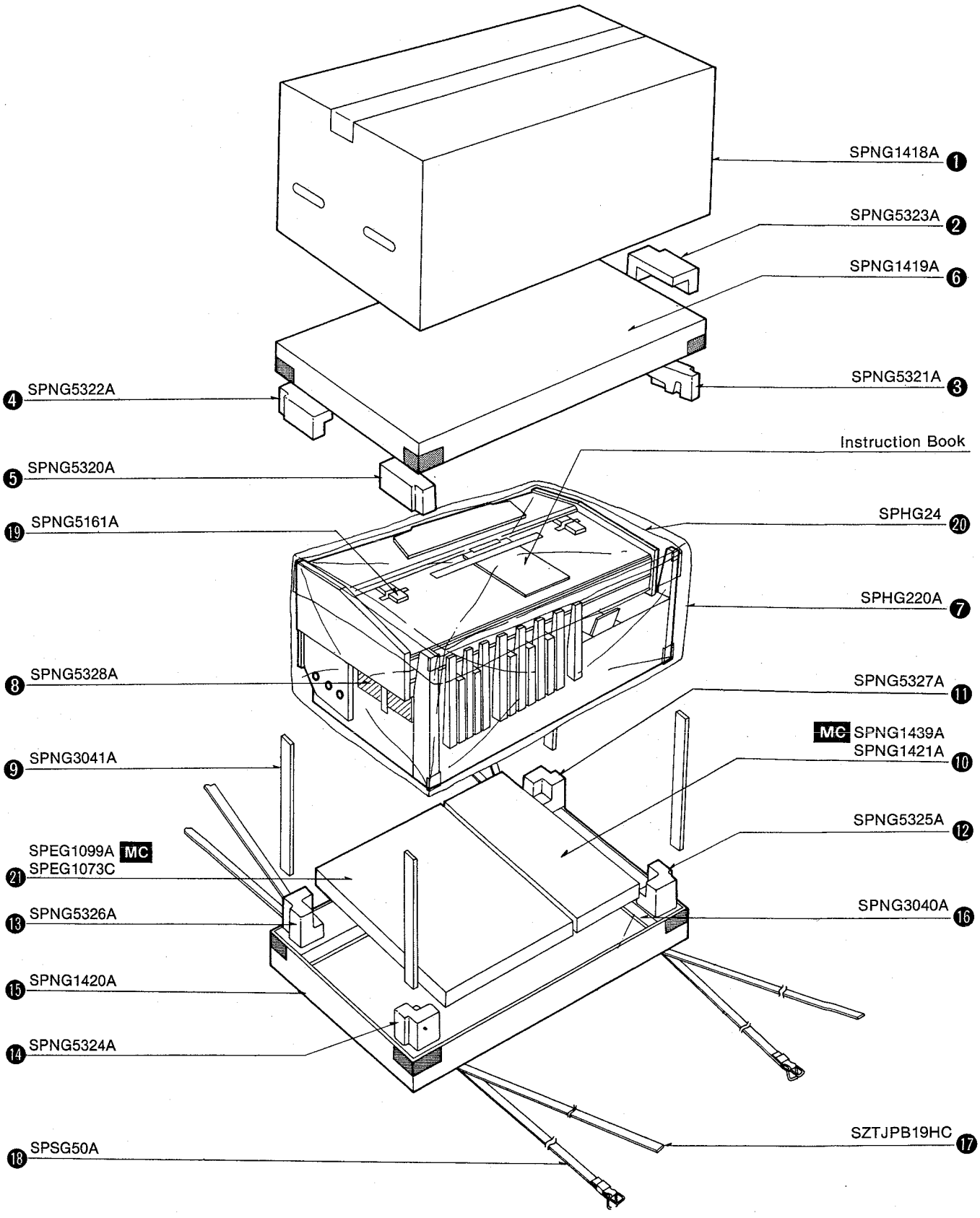
	Part No.	Description	Per/ Set
O	SBCG130A01	flute 16′ (upper tab voices)	1
O	SBCG130A02	flute 8′ (upper tab voices)	1
O	SBCG130A04	flute 4′ (upper tab voices)	1
O	SBCG130A06	flute 2′ (upper tab voices)	1
O	SBCG130B01	string 8′ (upper tab voices)	1
O	SBCG140K05	harmonic coupler $2^2/_3{}'$	1
O	SBCG130A09	percussive tone 4′	1
O	SBCG130C01	click	1
O	SBCG130A02	flute 8′ (lower tab voices)	1
O	SBCG130A04	flute 4′ (lower tab voices)	1
O	SBCG130B01	string 8′ (lower tab voices)	1
O	SBCG140K06	harmonic coupler 2′	1
O	SBCG170G00	full	1
O	SBCG140A03	bass 16′ (bass)	1
O	SBCG140A04	bass 8′ (bass)	1
O	SBCG140B10	electric bass (bass)	1
O	SBCG170G00	volume (bass)	2
O	SBCG130A12	U tab voices (tremolo/celeste)	1
O	SBCG130E02	U & L poly presets (tremolo/celeste)	1
O	SBCG130A13	L. tab voices (tremolo/celeste)	1
O	SBCG140B12	celeste (tremolo/celeste)	1
O	SBCG140D03	chorus/tremolo (tremolo/celeste)	1
O	SBCG140A05	march (rhythm selector)	1
O	SBCG140C02	swing (rhythm selector)	1
O	SBCG140A06	8 beat (rhythm selector)	1
O	SBCG140C04	disco I (rhythm selector)	1
O	SBCG140A09	bossanova (rhythm selector)	1
O	SBCG140C06	samba (rhythm selector)	1
O	SBCG140A12	tango (rhythm selector)	1
O	SBCG140C07	waltz (rhythm selector)	1
O	SBCG170G00	full (rhythmic orchestra)	1
O	SBCG140B15	I/II (rhythmic orchestra)	1
O	SBCG140E11	on (rhythmic orchestra)	1
O	SBCG170G00	drum percussion volume	2
O	SBCG140K00	fill in & intro	1
O	SBCG140K04	cancel (Program Chord Computer)	1
O	SBCG140J02	PCC (Program Chord Computer)	1
O	SBCG140J03	fingered (Program Chord Computer)	1
O	SBCG140A13	memory (Program Chord Computer)	1
O	SBCG140F10	record	1
O	SBCG140E10	transpose	1
O	SBCG140A14	glide/rhythm	1
O	SBCG140L08	close/open (techni-chord)	1
O	SBCG140D02	on (techni-chord)	1
O	SBCG140A15	synchro	1
O	SBCG140F11	start/stop	1
O	SBCG160C00	free set (tuning)	1
O	SBCG170G00	volume (tuning)	2
O	SBCG160C00	on (sustain)	3
O	SBCG170G00	volume (sustain)	8

	Part No.	Description	Per/ Set
O	SBCG170G00	main volume	2
O	SBCG170G00	reverb	2
O	SBCG140L00	Fullband Setting Computer	1
O	SHRG9390A	Lever, Tang switch type	13
O	SHRG9410A	Lever, Push switch type	86
O	SHRG9400A	Case, Tang switch type	13
O	SHRG9420A	Case, Push switch type	86

INSTRUCTION BOOK

O	SQFG1110	*Instruction Book (EN, ES, ED, EL)*	
O	SQFG1180	Instruction Book (ENGLISH, DEUTSCH, FRANÇAIS, ESPAÑOL, NEDERLANDS)	

PACKING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SPNG5323A 2
SPNG1419A 6
SPNG5321A 3
4 SPNG5322A
Instruction Book
5 SPNG5320A
19 SPNG5161A
SPHG24 20
SPHG220A 7
8 SPNG5328A
SPNG5327A 11
MC SPNG1439A
SPNG1421A 10
9 SPNG3041A
SPNG5325A 12
SPEG1099A MC
21 SPEG1073C
13 SPNG5326A
SPNG3040A 16
15 SPNG1420A
14 SPNG5324A
SZTJPB19HC 17
18 SPSG50A